The Golden Hands Encyclopedia of

CRAFTS

The complete guide to
traditional and modern home crafts

Volume 18
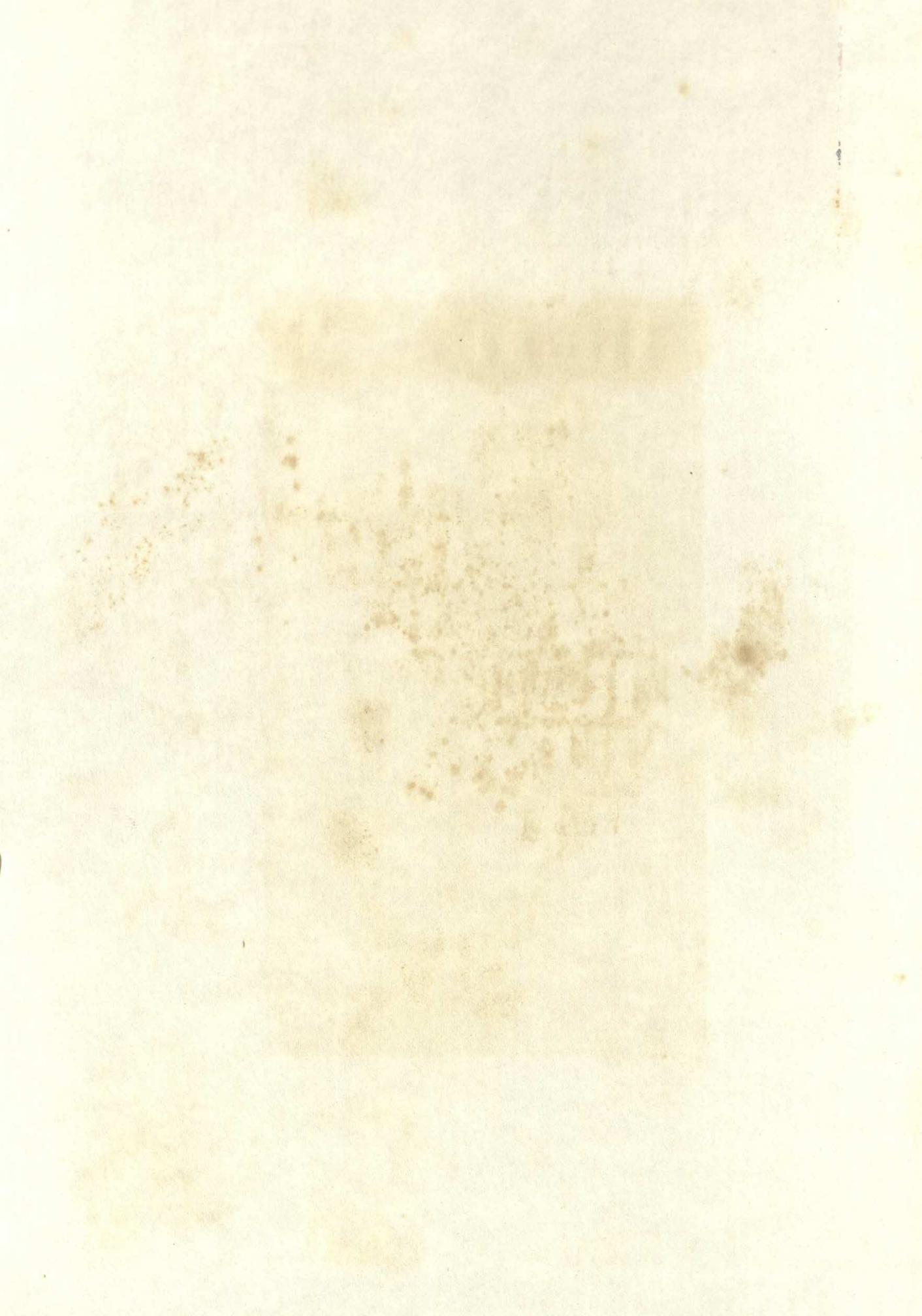
Golden Hands Encyclopedia of

CRAFTS

Marshall Cavendish

Contents

✳ Not suitable for children without adult supervision
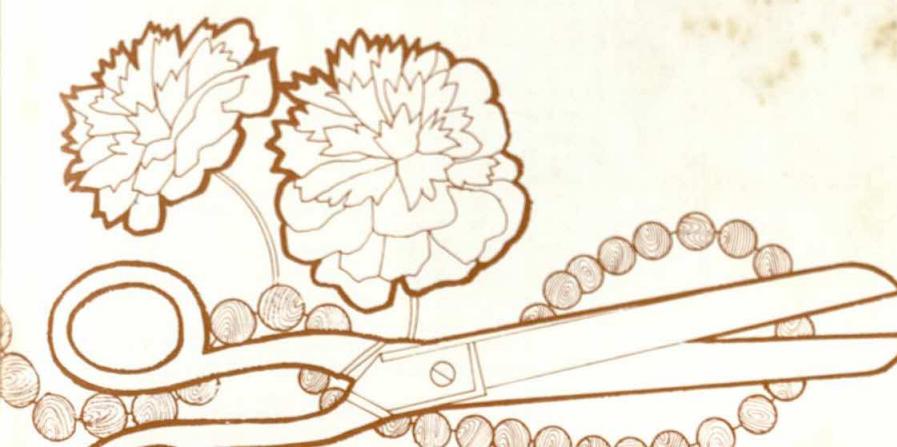
Suppliers addresses
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Please send a s.a.e. with any enquiries to the suppliers below

Creative Ideas 69. Guttapercha tape from your local florist.
Needlepoint 10 Four-way Florentine designs by Mardie Gorman Needlepoint School, 31 Trevor Sq, London SW7. Skirt and blouse from a selection at Laura Ashley, 9 Harriet St, London SW1.
Paper 52. Wire at hardware shops. All other items at stationers and craft shops. 'Mr Sketch' Instant Water Colours available by mail order only from Sandhurst (Britannica) Ltd, Spindle Way, Crawley, Sussex RH10 1TH.
Clay 44. Materials at The Fulham Pottery Ltd, 210 New King's Road, London SW6 4NY or at Southern Supplies Centre, 42 Morley Road, Tonbridge, Kent; Harrison Mayer Ltd, Meir, Stoke-on-Trent, Staffs ST3 7PX; Ferro (Great Britain) Ltd, Wombourne, Wolverhampton WV5 8DA who also supply overseas; Wengers Ltd, Garner St, Etruria, Stoke-on-Trent, Staffs ST4 7BQ. Commercial tile cutter at Podmore & Sons Ltd, Shelton, Stoke-on-Trent, Staffs who also offer mail order service and Harrison Mayer Ltd.
Clay 45. A wide range of clay requisites available at Clayglaze, King's Yard, Talbot Rd, Rickmansworth, Herts. Clay tools at H W Anger & Son Ltd, 1 Mill Lane, Polstead, Colchester, CO6 5AB. (Both addresses also offer mail order service). For further clay addresses see Clay chapter 44 above and Clay 42, Volume 17. Finished lamps available at Earth, 5 Windmill Row, London SE11.
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Carpentry 22. Materials at DIY stores and timber merchants. Folding chairs from MFI furniture centres. (Write to the head office at New Stadium Works, North End Rd, Wembley, Middx, for your nearest branch.) Rush matting, split bamboo blind, tray, coffee pot, mugs and vase at Habitat, 206 Kings Rd, London, SW3 and branches. Plates, cheese tray and glasses at Heals, 196 Tottenham Court Rd, London W1A 1BJ. Cream jug from a selection at The Neal Street Shop, 29 Neal St, London WC2. Red dress by French Connection from Dickens & Jones, Regent St, London W1A 1DB.
Paint 28. Air brush and masking films at most large art shops.
Paint 30, 31. Brummer stopping, badger hair, hog hair and squirrel hair softeners at J T Keep, 15 Theobald's Rd, London WC1. Oil scumbles at DIY shops or send SAE to manufacturers J H Ratcliffe, 135A Linaker St, Southport PR8 5DF for nearest stockist.
Basketry 16. Cane at Eaton's Bag Company, 16 Manette St, London W1V 5BL who also offer mail order service and Colorcraft, 1 Emson Close, Saffron Walden, Essex CB10 1HL for personal shoppers only.
Basketry 17. Cane chair seating at Eaton's Bag Company, 16 Manette St, London W1V 5LB and The Deben Craftsmen, 9 St Peter St, Ipswich for personal shoppers and mail order service. Also at Dryad Ltd, PO Box 38, Northgates, Leicester, Leics LE1 9BU (mail order only). Pottery fruit bowl from the Craftsmen Potters Shop, William Blake House, Marshall St, London W1V 1LP. Chair at Habitat, 206 King's Road, London SW3 and branches.
Basketry 18. Materials at Dryad Ltd, PO Box 38, Northgates, Leicester, Leics LE1 9BU by mail order only. Floor cushions at Peter Jones, Sloane Square, London SW1 and branches of the John Lewis partnership. Toy donkey at Tiger, Tiger, 219 King's Rd, London SW3. T-shirts from a selection at Meeny's, 163 Draycott Ave, London SW3 and 241 King's Rd, London SW3.
Weaving 24. All yarns, loom and weaving accessories available at The Handweavers Studio & Gallery Ltd, 29 Haroldstone Rd London E17 7AN who also offer mail order service.
Metal 27, 28. Precious metals at J Blundell & Sons Ltd, 199 Wardour St, London W1V 4JN. Other materials at hardware stores and DIY shops.
Leather 6. Tools and hides at J T Bachelor & Co, 146 Fleet Rd, Hampstead, London NW3 2RH and Barrow Hepburn Leather Store, 205 Kensington High St, London W8 (both also offer mail order service and Barrow Hepburn offer tuition). Corduroy boiler suit from a selection at Fiorucci, 15 Brompton Rd, London SW3 1ED. Polo neck sweater and scarf at Dickins & Jones, Regent St, London W1A 1DB.
Leather 7. Soft leather (suede and grain) and skiver at Alma (London) Ltd, 23 Charterhouse Sq, London EC1 6JN. Pigskin suede at David E Jacobs, 263 Hackney Rd, London E2 8NB. Both addresses offer mail order service.
Embroidery 15. Vanishing muslin and machine embroidery cotton at McCullock & Wallis, 25 Dering St, London W1. Machine and embroidery hoop at Elna Sewing Machines, 180 Tottenham Ct Rd, London W1P 9LE.
Modelling 23. Materials at timber merchants and DIY stores. The gouge used in the photograph is catalogue number 3707 x 22mm ($\frac{7}{8}$") and is obtainable from Henry Taylor, Lowther Rd, Sheffield S6 2DR.
Lapidary 6. Hand polishing kits for pebbles and gemstones at Gemrock of Holborn Ltd, Brunswick Shopping Centre, Marchmont St, London WC1W 1AY. Grits and polishes at Pebblegems, 71 St Marks Rd, Bush Hill Park, Enfield, Middx and Rough and Tumble Ltd, 20 Front St, Tynemouth (both offer mail order service) and other rock shops. Mineral display stands from E P Joseph Ltd, Supremacy House, Hurstwood Rd, London NW11, and Baines Orr (London) Ltd, 1 Garlands Rd, Redhill, Surrey. Custom slabbing at Minera Associates, 8 Clarence Pl, Clapton Sq, London E5. Slabs from Nature's Sculpture, Harrods, Knightsbridge, London SW1 7XL.
Dyeing 11. Fast-acting cold water dyes (Procion M), tjanting tools at batik materials at Hobby Horse, 15 Langton St, London SW10. Long dress from a selection at Dickins & Jones, Regent St, London W1A 1DB.

Metrication

In this volume you will find two systems of measurement. The first set of figures refers to the metric system and the Imperial figures follow in brackets. Wherever possible, a commonsense approach has been adopted and both sets of measurements have been worked out in round numbers. **BUT BEWARE!** This means that metric and the Imperial figures are *not* equivalent so make sure you only work with one or other set of figures.

Creative ideas 68

Decorated sandals

If you own a pair of worn sandals with wooden soles which you are ashamed to wear, try one of the ideas on this page.

First remove the screws or tacks holding the worn strap to the sole. (If this is difficult ask a shoe repairer to help you.)

For the multi-colour needlepoint design you will need:

Single canvas 10 threads per 2.5cm (1″) measuring 30cm x 17cm (12″x 7″) for each sandal (length may vary according to foot width), selection of yarns, light-weight fabric for lining, tapestry needle, six screws per shoe, screwdriver, matches.

Either follow the chart in fig.1 or work out an alternative design, such as the Greek key shown in the photograph. (Needlepoint chapter 4, page 544 discusses designing and transferring a design on to canvas.)

The shaped design should be tried for size against your own foot width and adjusted if necessary—but allow extra material for attaching strap to sole.

Work in tent stitch and, when needlepoint is completed, stretch the canvas to its original shape. (For both these techniques see Needlepoint chapter 6, page 850.)

To prevent unravelling machine stitch all round canvas close to design edges. Cut canvas, leaving 1.5cm (½″) margin around design.

Now cut out lining the same size as the canvas. With right sides together, taking 1.5cm (½″) seams machine stitch canvas to lining, leaving one long edge open. Trim seam. Turn right side out. Turn in and hand sew final edge.

To fit strap on to sole with screws first insert a match into each hole. Break match level with surface of sole.

Foot-loose and fancy-free sandals decorated with needlepoint, découpage and ribbons.

Insert screws through strap and filled holes, with shorter length of strap across toes. Screw to secure.

For the découpage design you will need:

Paper cut-outs such as flowers, glue such as PVA adhesive, 5cm (2″) wide trim (length according to foot width), hammer, carpet tacks, polyurethane varnish, glue brush.

Apply glue to sides and top of sandals and stick on patterns. Seal with polyurethane varnish for protection.

Attach the decorative trim

to top of soles rather than sandal sides, first with a strong glue and then, for permanency, hammer carpet tacks into the sole.

For the ribbon sandals you will need:

Ribbon 2.5cm (1″) wide cut into four 64cm (25″) lengths for ankle straps, twelve 18cm (7″) lengths for toe pieces, six 10cm (4″) lengths for covering pieces. Fabric adhesive, hammer, carpet tacks, glue brush.

Apply glue and stick two toe pieces of ribbon wrong sides together. Repeat with other ten pieces—making

three for each shoe. The doubled ribbons will give longer wear. Before the next stages, try on the sandals.

Apply glue and stick two pieces across toe area in a 'X' and the third straight across on to sole sides (see photograph).

Insert carpet tacks to secure.

Place ankle straps at heels of sandals. Stick in place, and then use tacks as before. Using glue cover tacks with three additional covering pieces of ribbon on sides and heels.
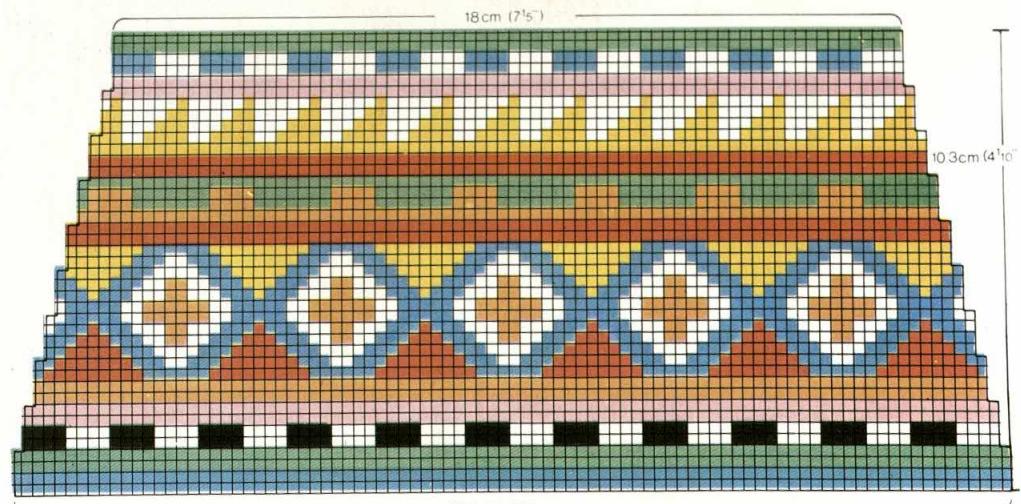
1. Needlepoint design requires single canvas, 10 threads per 2.5cm (1″).

Toy shop made from boxes

Cardboard boxes can easily be converted into many different toys for children. One such toy is a shop, from which young children will derive hours of fun, serving groceries, bread, fruit and vegetables, or whatever they choose. They will also develop numerical skills as they take it in turns to play at being shopkeeper and customer, using home-made paper and cardboard money. They will learn to measure the amount or the number of goods required, add up the cost of different things and work out the change to be given.

Even parents with little skill at handicrafts will find the shop extremely simple and quick to make. It is also an inexpensive toy, since the main items used, the cardboard boxes themselves, can be obtained free of charge from shops and supermarkets.

Make sure that your boxes have proper lids which can be taped closed before you start. You can use boxes of different sizes from those given; the basic instructions are still the same.

This shop made from cardboard boxes is a tough, long-lasting toy which is also very cheap and easy to construct. It will keep children amused for hours.

To make the shop

You will need:

Nine tough cardboard boxes, seven of about 50cm x 50cm (20"x 20") and about 20cm (8") deep, and two slightly larger ones, each about 56cm x 50cm x 20cm (22"x 20"x 8").

A roll of textured wallpaper or lining paper.

Wallpaper paste.

A roll of heavy-duty sticky tape, such as carpet tape.

Eleven 2cm (¾") bolts with nuts and washers.

A kitchen knife or a handyman's knife (as used for cutting carpets).

A pencil.

Paint (optional).

For the shelf bases, take the two larger boxes and set them on their narrow sides.

□ Cut off the upper corners of one long edge of each box at 45° angles, to a depth of 10cm (4") as shown (fig.1).

To make the shelves, first cut two boxes in half lengthwise (fig.2). This creates four square compartments, each 10cm (4") deep and 50cm (20") square.

□ Cut the boards for the shelves from another box, and attach them to the compartments with tape. (The shelf variations within each compartment can be arranged according to your personal preference.)

To make the semi-circular shelves, cut from another box three strips of card 10cm (4") wide and 50cm (20") long, for the bases. Then cut three cardboard semi-circles, each with a radius of 25cm (10") for the backs. Cut 10cm (4") wide strips 25cm (10") long for the dividers—the number you have is up to you. Then cut another three strips 10cm (4") wide and the length of the top of each semi-circle. You will have to tape pieces of card together to make each strip long enough. These are for the curved 'roof' parts of these units. To curve each piece into a semi-circular shape, pull it sharply over the edge of a table (fig.3).

□ Tape the dividers to the back of each shelf and to the bases and tape the curved strips round the top and to the ends of each base (fig.4).

For the counter sections, cut two boxes in half lengthwise, so that each piece measures 50cm x 25cm x 20cm (20"x 10"x 8").

□ To make the interior shelf (the one in the photograph which holds the apples), remove one long side from one of the cut sections and secure it across the middle with tape. You can make interior shelves for all the counter units if you like.

Each section of the shop should now be covered with wallpaper. This not only makes the boxes look more attractive, but also helps to strengthen them against wear and tear.

□ Neatly wrap the wallpaper round each unit and cut to fit. Apply wallpaper paste to the wrong side of the wallpaper and stick it to the boxes.

To assemble the units as shown in the photograph, place them in position (fig.5) and mark with a pencil where

the nuts and bolts will go.

□ At each pencil mark, make a hole in the cardboard with the point of the knife for each nut and bolt and fasten the units together. Of course you or your children can paint a shop sign or a pattern on the wallpaper, or paint the whole structure if you like.

1. Base unit. 2. Shelf units.
3, 4. Semi-circular units.
5. Assembling the units.

Trevor Lawrence

The last Clay chapter described how to make ocarinas, which are a type of flute. It is also possible to make a recorder-type flute, using the same whistle-reed as that used for the ocarina. You can make either a short treble flute or the longer alto version. Fig.1 shows the dimensions and design of both.

The flute

You will need:
About 500gm (1 lb) of prepared clay.
Rolling pin.
Sharp knife.
Cutting wire.
Small wire loop tool.
Short piece of hacksaw blade.
☐ Roll the clay into a long coil, about 2.5cm (1") in diameter by 32cm (12½") long.
☐ Roll out a second coil, about 4cm (1¾") long and the same diameter.
☐ Allow both to become firm.
☐ From the shorter coil construct the whistle as described in Clay chapter

Left: a duet of flute and ocarina. Their designs are as pleasant to the eye as their sound is to the ear.

42, page 1878, but without shaping the end because it does not have to be fitted to a curved sound chamber.
☐ Slice the long coil in half down its length, using the cutting wire.
☐ Use a wire loop tool to hollow out the two pieces. The walls of the tube should be about 3mm(⅛") thick.
☐ Score the edges and rejoin the halves with slip.
☐ Make a small bevel at one end of the long tube, as described for the whistle ocarina.
☐ Join the whistle to the tube with slip, taking care that the opening does not become clogged.
☐ Cut coil to length required (fig.1) and bore and countersink the finger-holes, as described for the ocarina.

Decoration

The flutes can be decorated in the same manner as the ocarinas, although it is probably wise to restrict the decoration to the body of the flute and not attempt to add exterior clay forms. As has already been described, ocarinas can readily be adapted into bird or animal forms—flutes are best left straight and undisguised.

Sweet pipes to play on, designed by Neil Ions. Decorations in subtle hues are based on Central American motifs.

Alto flute

Join

12cm (4⁷⁄₁₀)

Thumb hole underneath

2.4cm (9⁄₁₀")

2.5cm (1")

36cm (14")

4.5cm (1⁴⁄₅")

Smallest — 2cm (4⁄₅")

Largest — 2.8cm (1¹⁄₁₀")

Second Largest

7cm (2⁴⁄₅")

2.5cm (1")

Treble flute

Join

7.5cm (2⁹⁄₁₀")

Thumb hole underneath

2cm (4⁄₅")

2.2cm (9⁄₁₀")

28cm (11")

3.8cm (1½")

Smallest — 1.8 (7⁄₁₀")

Largest — 2.5cm (1")

Second Largest

5.5cm (2¹⁄₅")

2.5cm (1")

1. *Left: the diagrams on the left give the overall dimensions and proper spacing of holes for an alto and treble flute.*
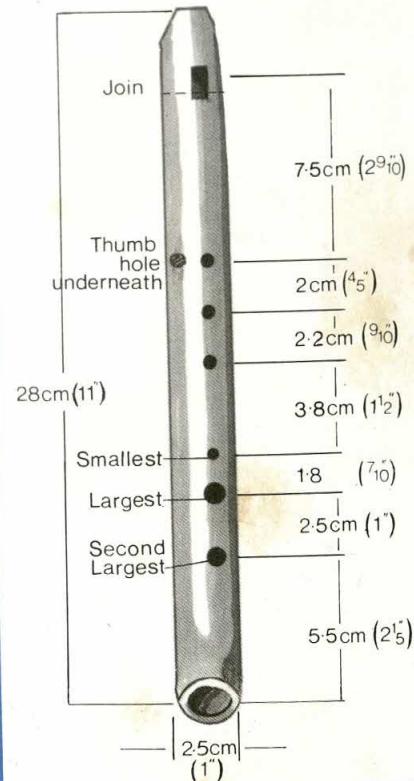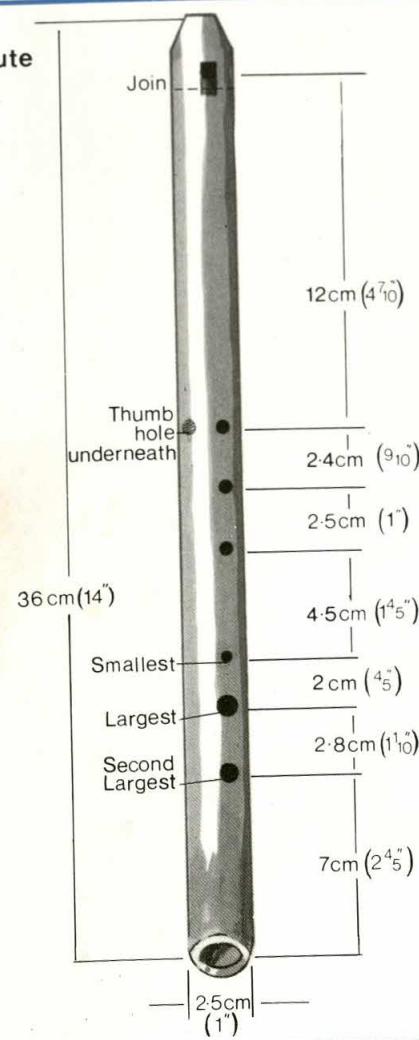
T&G panel dining table

Apart from decorative wall claddings, tongue and groove jointed panels can also be used to make tables. Usually, good quality floorboarding is used as it is wider than wall panelling.

The dining table can be made entirely from T and G floorboards or the frame can be made from ordinary softwood. If you are ready to spend time cleaning old floorboarding, it could be used to give the table an 'antique' look.

The construction of the table introduces a tool called a scratch stock, used to make a grooved design feature on the edge of the wood (see overleaf). The tool is made from two pieces of plywood, 12mm thick ($\frac{1}{2}$") and a piece of

1. *Table to accommodate six people.*

The size of the table depends on the number of people you wish to accommodate and the size of the room. Fig.1 shows recommended size and the amount of space which is required for six people to sit down, and eat and be served in comfort.

The table shown can be either 90cm or

70cm (27½")
90cm (35½")
150cm (59")
90cm (35½")
50cm (19½")
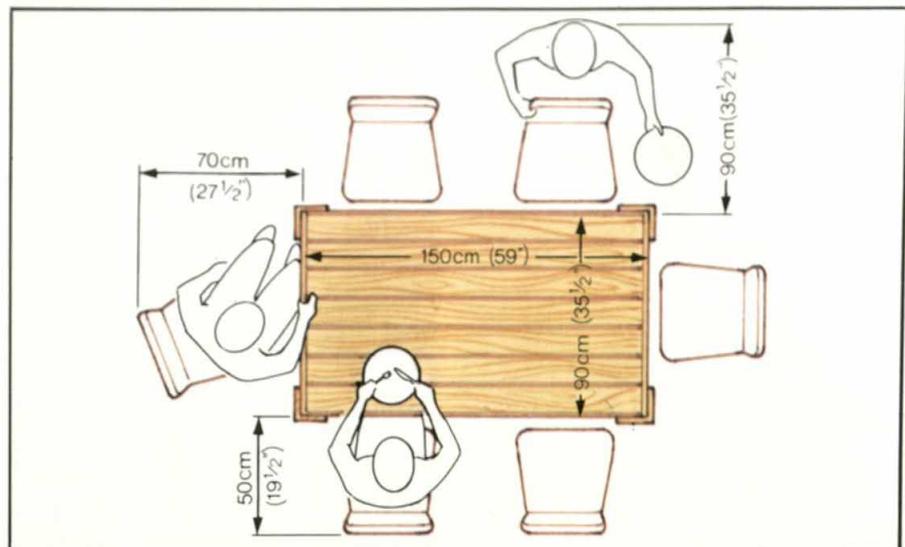
hacksaw blade shaped with a metal file. Take a small section of wood at a time and carefully scratch an initial groove. Gradually apply more pressure until a definite groove is formed. The process is lengthy but the final result is worth the effort.

150cm (35½" or 59") long, but for functional purposes should remain 90cm (35½") wide. Measurements given for the legs, end rails and end battens are the same for both tables. When making the longer table, the length of the side rail alters. Sizes given (fig.2)

two supports for 150cm (59") table
one support for 90cm (35½") table

90cm (35½") or 86.2cm (34") with KD Bloc Joint fittings

30mm (1¼")
86.2cm (34")
cut 2
90cm (35½")
cut 2
50mm (2")
146.2cm (57½")
cut 2
86.2cm (34")
111mm (4¼")
130mm (5")
75cm (29½")
cut 4
75cm (29½")
cut 4
119mm (4¾")
100mm (4")
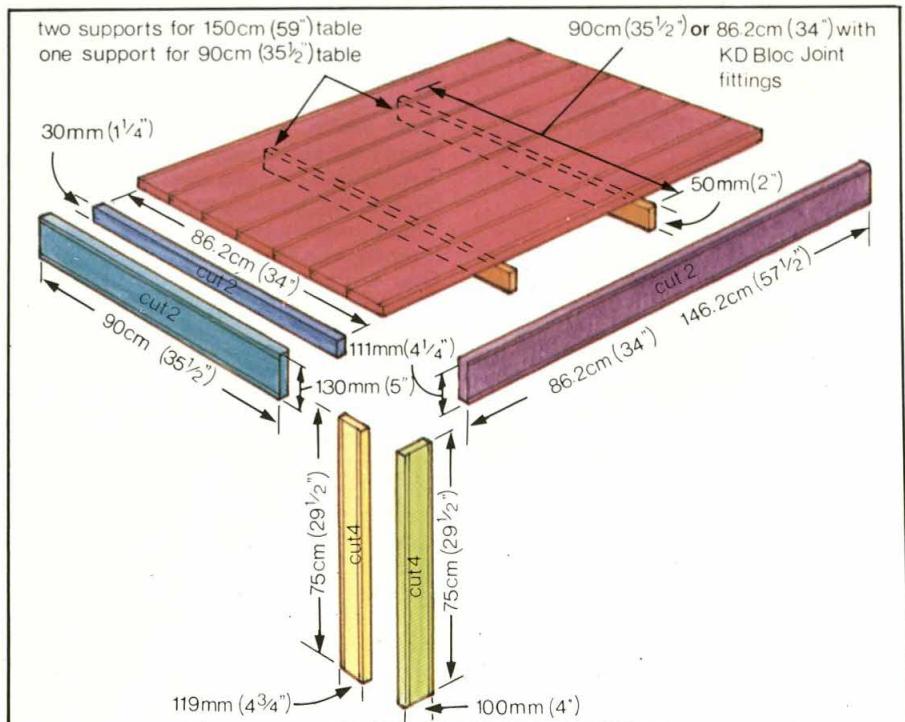
Left: the completed dining table made from floorboards. It is large enough for six people. Designed by David Willacy.

2. *Above: measurements and assembly details of table. Two lengths are indicated to make a small or large table.*

ensure that this sturdy, hard-wearing table not only looks, but is, stable.

You must remember that softwood is liable to shrink or expand (more likely it will shrink with the central heating of a modern home) and for this reason the joints are not glued. To accommodate these tendencies it is important to store the wood in the room in which the table will be used for at least a week before beginning the construction of the table. Stack the pieces in a square and weight the top down as much as possible to prevent warping (fig.3).

weights
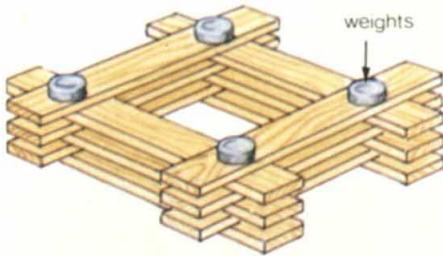
3. *Storing timber to prevent it warping.*

The joints of some T and G boards, especially flooring, fit flush and, when shrinkage occurs, small gaps will appear between the T and G panels. So, in the design, the grooved edge of each board has been shaped to camouflage possible shrinkage, and for an all over decorative effect (fig.4).
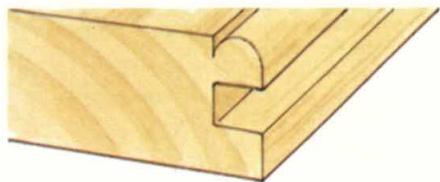
4. *Shaping the grooved edge.*

This is achieved by using a scratch stock (fig.5), a tool used mainly for

part of old hacksaw blade
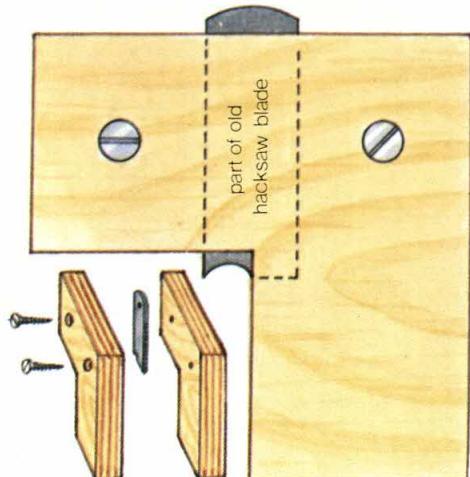
5. *Details of a scratch stock.*

cutting small mouldings on panelling and narrow grooves for inlays. The scratch stock is not difficult to make or use but a small, carefully planed chamfer (ie taking the corner off the square edge) is a good alternative. The same shaping is given to the edges of the leg joints and rails to complete the effect (see fig.4).

You will need:
Tools and materials:
Plane, saw, hammer, screwdriver, drill, carpenter's square, scratch stock. A box of 100 No.8 or No.10 screws 3.2cm (1¼") long.
Panel pins 3.8cm (1½") long for skew nailing the panels.
Wood adhesive, medium and fine grade glasspaper.
Wood filler. Polyurethane finish, eg Ronseal Satincoat.
16 countersunk screws or 70cm (28") of 6mm (¼") dowelling for legs.
KD Bloc Joint fitting—optional. KD or 'knock down' fittings are used to eliminate complex joints by providing a simple and accurate fitting which serves the same function as would a joint.

Wood requirements:
The table can be built entirely from 19mm (¾") T and G floorboards, approximately 140mm (5½") wide, which can be trimmed to the required width and length. Either hardwood or softwood can be used but softwood panels or floorboarding is more common and cheaper than hardwood.
Four pieces 100mm x 19mm (4"x ¾"), 75cm (29½") long.
Four pieces 119mm x 19mm (4¾"x ¾"), 75cm (29½") long.
These eight pieces are for the legs.
Two pieces 130mm x 19mm (5"x¾"), 90cm (35½") long—for the end rails.
Two pieces 111mm x 19mm (4¼"x¾"), 86.2cm (34") long—for the side rails. These pieces must be 146.2cm (57½") long for the larger table.
One or two pieces 50mm x 19mm (2"x ¾"), 90cm (35½") long—for the centre supports.
If making the smaller table then only one centre support is necessary. If the table is 150cm (59") long, use two supports situated 47.5cm (18") from either end.
This length is used if the support is fitted into a slot. If a KD Bloc Joint fitting is used, the length will be 86.2cm (34").
Two pieces 30mm x 19mm (1¼"x ¾"), 86.2cm (34") long—for the end battens (supports).
Seven tongue and groove floorboards, 140mm (5½") wide and of the appropriate length.
☐ Cut the end rails to the correct length. This is the width of the finished top (before joining the two legs on either side). Glue and screw the end

batten to the end rail, bearing in mind that the distance from the batten to the top and side edges of the rail must equal the thickness of panels used for top and side rails respectively (fig.6).

thickness of panels

thickness of side rail

width of side rail
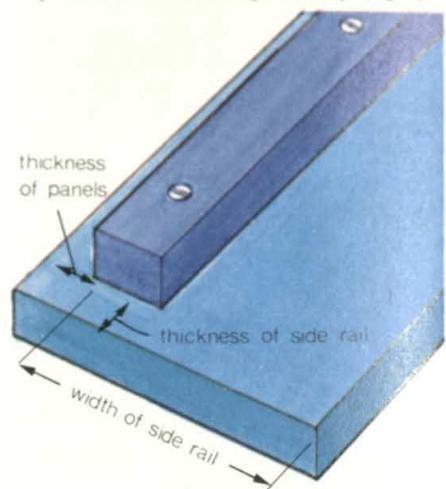
6. *Assembling the end rails.*

☐ Shape the edges of the leg pieces with the scratch stock or carefully chamfer with a plane.
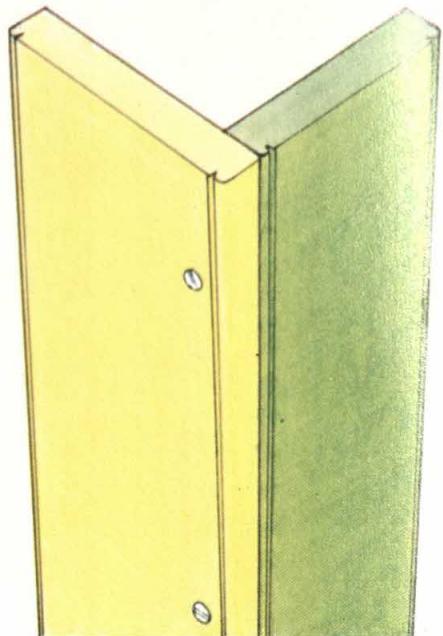
7. *Legs shaped with scratch stock.*

☐ Join two pieces either with four countersunk screws or dowel rods to make each leg (fig.7).
☐ Cut off the protruding dowel rods or, if screws have been used, fill the screw holes with a filler. Plane the top edge of the legs so that the top levels of the two leg pieces are flush.
☐ Shape the outside edges of the end rails with the scratch stock and, using four screws at each corner, fasten the rails to the legs. Use a carpenter's square to ensure that the angle

between the rail and the leg is 90° (fig.8). Do this at each corner.
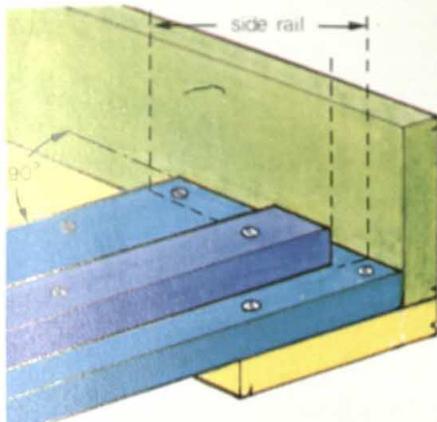
8. *Attaching legs to end rails.*

☐ Cut the side rails to the exact length—86.2cm (34″) or 146.2cm (57½″) —depending on the length of the table. Treat both outside edges with the scratch stock (fig.9). If necessary, cut

9. *Both edges of rails are shaped.*

the slots for the cross supports.
☐ The cross supports for the long table can be fitted into the slots on the side rails or fixed later with simple plastic KD Bloc Joint fittings (fig.10).
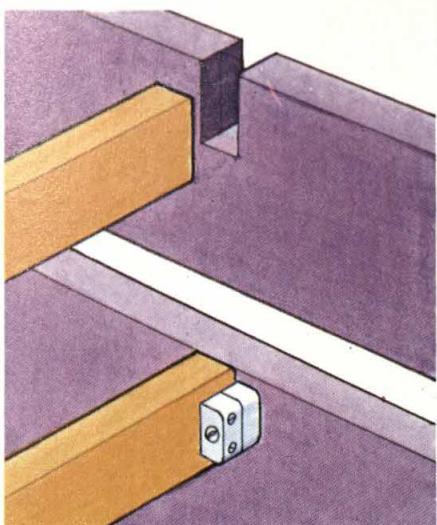
10. *Attaching the cross supports.*

Knock down fittings are available from hardware stores and come complete with instructions. To cut the slots, follow the instructions given in Carpentry chapter 16, page 1203.
☐ Screw the side rails to the legs, checking with the carpenter's square that the angle is 90°. The distance from top edge of side rail to top of leg must equal the thickness of the table top panels (fig.11).
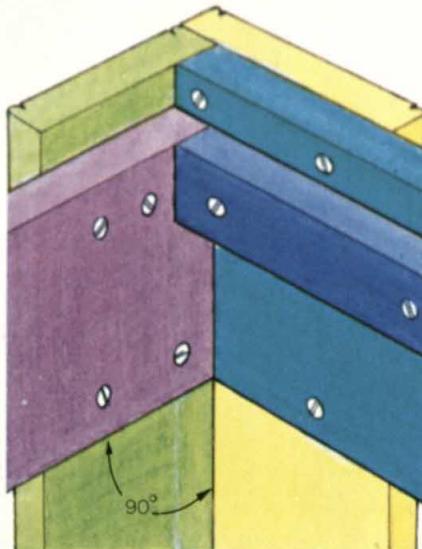
11. *Side rail is screwed to legs.*

☐ Fix the knock down fittings and cross piece, and the frame is complete.
☐ Carefully measure and saw the tongue and groove panels to fit the table—86.2cm (34″) or 146.2cm (57½″). This is the length of the table minus the thickness of the end rail.
☐ Plane off the tongue of the first panel and shape both outside edges with the scratch stock. Fit the planed edge into the corners so that it rests on the side rail, and skew nail into place. The nail should be sunk into the end batten (fig.12).
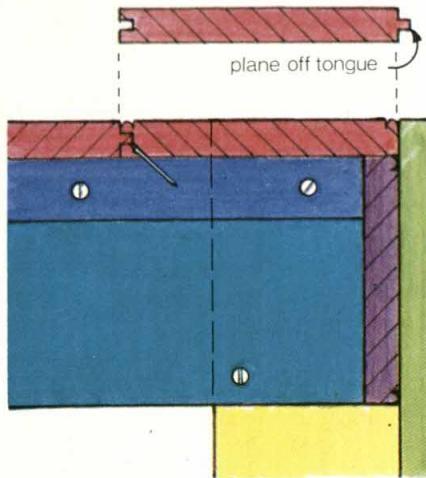
12. *Starting the table top.*

☐ Shape the grooved edge of the second panel and fit its tongue tightly into the first piece. Continue in this way but do not nail as with the first piece.
☐ The last piece must lose its grooved edge and be shaped with the scratch stock before being positioned. Do not nail it or fit it too tightly (fig.13).
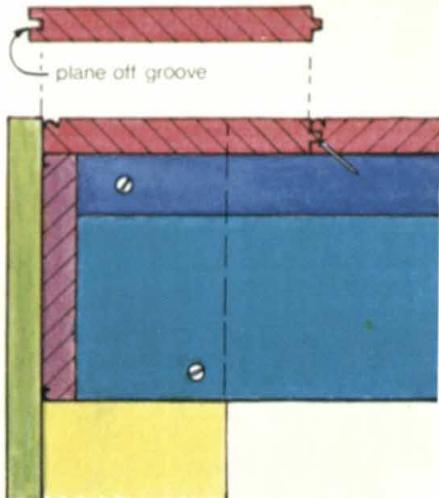
13. *Inserting last panel of table top.*

☐ Lastly, plane the bottom end of the legs to length to compensate for any slight twist in the frame. Chamfer the bottom corners to avoid damage to floor coverings (fig.14).
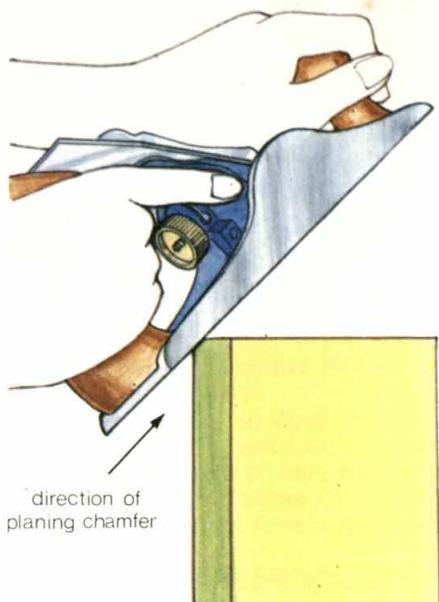
14. *Finishing off table legs.*

☐ The finish is a matter of personal choice but a polyurethane finish is recommended. Ronseal Satincoat, available from hardware stores, gives a durable and pleasant finish.
Apply according to the manufacturer's instructions.

Making up fur pelts

This chapter introduces the general techniques for sewing fur and adapting commercial paper patterns for this purpose. Sewing fur is a challenge which should be within the capabilities of most home dressmakers. It is not difficult but it is time consuming, so do allow yourself sufficient time to achieve the good results this expensive material deserves.

You can tan animal skins yourself (see Fur chapter 1, page 1886) or you may choose to purchase ready-dressed pelts from a specialist leather supplier or the larger department stores who may also supply fur trimming by the metre (yard). These are narrow lengths of fur which have been joined together in long straight strips.

You will need:

Single-edged razor blades or craft knife for cutting.

Glass-headed pins for marking positions on the fur—these are longer than ordinary dressmaker's pins and less likely to get lost in the fur.

Board or boards for blocking the fur, large enough to lay out all the pattern pieces.

Drawing pins, clothes brush or sponge.

Gloving needles—three-sided needles which cut a small triangular hole in the skin so that the thread glides, rather than drags, when pulled. They can be bought at larger haberdashers.

Waxed thread or button thread—ideal for sewing fur as it does not twist or snarl.

13mm ($\frac{1}{2}''$) twill tape to reinforce the seams.

Tailor's chalk or a ballpoint pen for marking the pelts.

Light-weight canvas, interfacing, lining, grosgrain ribbon, fastenings, trimmings etc as required.

Choosing a pattern

Choose a simple design with as few pattern pieces, seams or darts as possible. Most patterns which are suitable for fake fur fabrics—and there are many available—can quite easily be adapted for real fur. The following points will help in adapting the pattern.

For a first attempt, it is advisable to eliminate all buttons and button-holes and to plan to fasten the garment

Above: make this stylish waistcoat and luxurious matching hat in fur from Vogue pattern 9325.

with hooks and eyes.

If the pattern has a separate front facing, cut this if possible in one with the front of the garment, thus forming an extended facing (fig.1). To do this,

1. An extended facing is preferable.

FRONT

FRONT FACING

the front edge of the garment will have to be straight and in no way curved. On some garments, such as waistcoats or simple collarless jackets, the facing

Stunning coat made from Vogue pattern 9330. The fox fur collar and cuffs are detachable for easy cleaning.

can be eliminated altogether and the garment lined to the edge. In some cases, even the hem may be eliminated and the garment again lined to the edge for a quick and neat finish.

Eliminate patch pockets and use set-in pockets instead.

Eliminate any seams which are not necessary for the general shape of the garment—for instance a straight centre back seam.

Eliminate the back neck facing on patterns with collars.

Before cutting the fur, make up a test garment in calico or an old sheet. Fit this carefully and transfer any necessary alterations to the paper pattern. As the fur is sewn together edge to edge, no seam allowances are required,

so trim away the seam lines and the dart lines. Cutting out will be made easier if you make duplicate pattern pieces in paper, taking care to reverse them and label them, so you have a right sleeve and left sleeve, for example. Once the pattern is prepared, it is easier to work out the number of pelts required. This will depend on the size of the pelts and their condition—ie how much of the skin is usable—and, of course, the design of the garment. If you are making a large garment using small pelts, such as those of rabbit, it may even be worth while buying just one pelt initially to work out the requirements accurately.

The chart is intended to give a very approximate guide for buying rabbit (coney) skins as these are among the most readily available.

Cutting out

Before you begin to cut out, it may be necessary to join pelts together to

Number of rabbit skins needed	
Pair of fur-backed mittens or gloves	2
Cravat	2-3
Hat	2-5
Waistcoat	16
Jacket (approximately 77cm (30″) long	30
Knee-length coat	46

obtain a large enough area of fur for some pattern pieces.

Joining pelts. Mark the direction of the nap on the back using a ballpoint pen or tailor's chalk.

The pelts must be trimmed to form even shapes before they can be joined together. Follow the instructions on cutting given below. When you have cut the pelts, butt the edges together, making sure that any prominent stripes running through the pelts are aligned.

Working from the skin side, use waxed thread to overcast the edges together. Sew through the skin only and tease out any hair from the seam with the point of the needle. Make stitches close together but be sure that each one penetrates well into the skin so that it will hold.

Press the seam flat by rubbing it firmly with a scissors handle.

Reinforce by sewing twill tape over the seam with running stitches. These can be made without penetrating all the way through the pelt (fig.2).
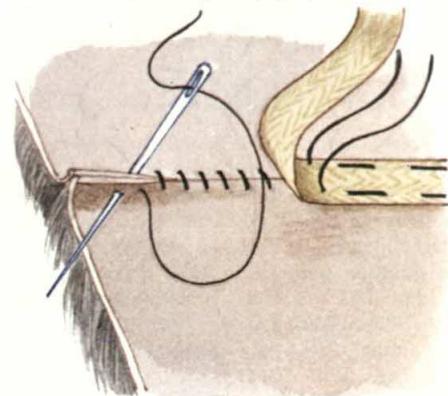
2. Reinforcing seams with twill tape.

Positioning pattern pieces. Lay the pattern pieces on the fur side of the pelts initially so that you can position the pieces to advantage.

On straight-haired furs, make sure that the fur (nap) runs in the same direction throughout the garment. This may mean making a seam at the centre back of the collar—if there is not one already in the pattern—so that the effect will be symmetrical at the front edges of the finished collar. On curly-haired furs this is not necessary. If there is a prominent stripe, make sure it will correspond on left and right garment pieces.

Mark the position of each pattern piece by pushing in glass-headed pins. Turn to the flesh side and re-lay the pattern pieces where indicated by the pins. Mark round them accurately using tailor's chalk or a ballpoint pen.

Cutting. Use a single-edged razor blade and work from the flesh side. Do not cut flat against a table but hold up the pelt and slice through it with the razor so that only the skin is cut and not the fur (fig.3). Cut out all the
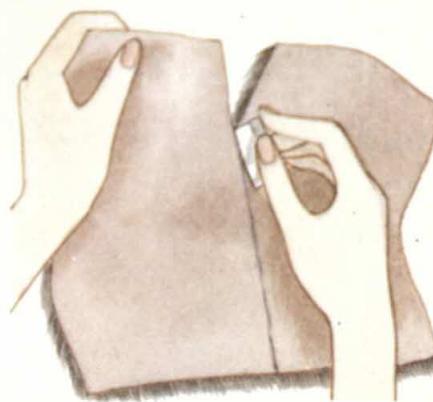
3. Slice skin with razor, avoiding fur.

pattern pieces in this manner but do not cut out the darts yet.

Blocking. The purpose of blocking is to shape the skins and make them easier to work with. Mark the outline of the pattern pieces on a wooden board. Use a clothes brush or sponge to wet the flesh side of the pelt. It should be wet enough to give it stretch and pliability, but not saturated—the fur should be kept dry.

Place the pelts, fur side down, carefully over the relevant pattern outline and pin in place with drawing pins (fig.4). Allow to dry naturally for at
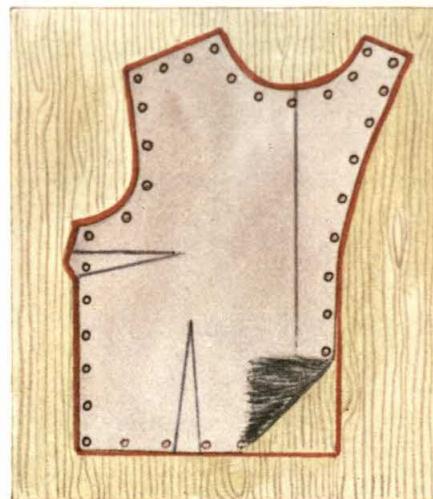
4. Pin damp skin over pattern outline.

least 24 hours but do not use direct heat.

When the pelts are dry, remove the drawing pins and check for stretching. Re-cut the correct outline if blocking has caused the skin to stretch.

Cut out the darts. Clearly mark in the position of balance marks, pockets, fastenings etc. The pieces are now ready to sew together.

Follow the instructions given with the paper pattern for general assembly of the garment but observe the following special techniques for working with fur.

Sewing

Reinforce all edges to be sewn in seams with 13mm ($\frac{1}{2}''$) wide twill tape. Catch stitch the tape in place, keeping it flush with the edge of the skin. Join the seam edges together from the flesh side with small overcasting stitches being sure to catch in the tape (fig.5).
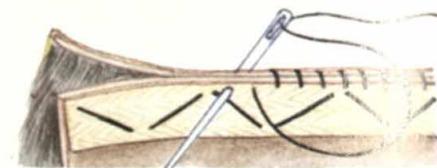
5. Catch in tape when overcasting seam.

Reinforce darts in the same way, attaching a continuous strip of tape down one side of the dart and up the other, folding it over at the point of the dart. It is best to use a thimble.

Use the needle to push stray hair through to the fur side and, if necessary, put a little water on the hair to keep it out of the way while sewing.

Flatten the seam by rubbing it firmly with a scissors handle. The two edges will then butt to form a flat seam (fig.6).

6. Flatten seam with scissors handle.

Finishing edges. All finished edges of the garment must also be bordered with tape to which the lining can later be attached. To do this, place the tape on the fur side, flush with the edge and overcast in place (fig.7). Turn the tape
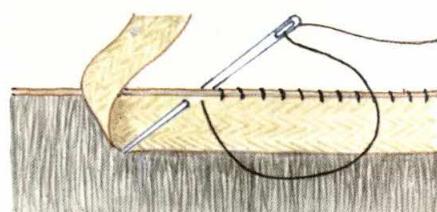
7. Place tape on fur side and overcast.

to the flesh side making sure a small amount of fur is visible so that the

tape will not show on the finished garment, and sew in place with long running stitches (fig.8).
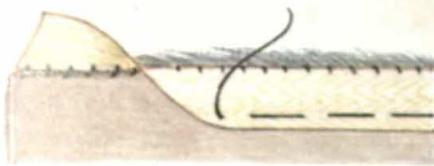
8. Turn tape to flesh side and stitch.

Interfacing. If the garment has no facing but is lined to the edge, cut a 5cm (2") wide strip of light-weight canvas interfacing the length of each front section. Slip it under the taped edge as far as it will go and sew both long edges of the interfacing in place with running stitches.

If the garment has an extended facing, cut the interfacing twice the width of the facing as shown and, placing it just slightly in from the raw edge, sew both long edges in place (fig.9). Fold the
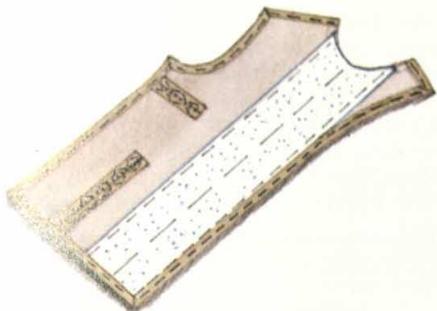
9. Stitch long edges of interfacing.

facing to the inside along the fold line and sew the two layers of interfacing together with two rows of stitches—one half way between the fold and the edge of the interfacing and one at the
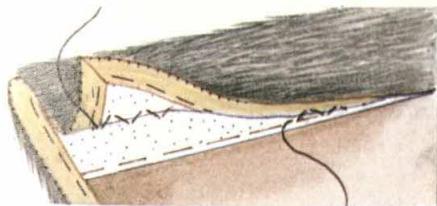
10. Join layers of interfacing twice.

edges of the interfacing (fig.10).
Note: if hooks and eyes are to be used for fastening, these must be attached before the extended facing is finished.
Hems are sewn in place in a similar way to facings. Use interfacing cut twice the depth of the hem, as you would for a facing, but bind the raw hem edge with 25mm (1") wide grosgrain ribbon before sewing in place. Then sew with two rows of stitches as shown in fig.10. For garments which

are lined to the edge all round, the hem will be finished in the same way as the centre front edges.

Attaching fastenings

Hooks and eyes especially made for fur provide an alternative fastening to buttons and buttonholes and are more suitable for beginners.
Furrier's hooks are extra large and usually made from strong steel covered with thread. They must be attached before the extended facing is finished. To do this, mark the position of the fastening and make a cut along the fold line just slightly longer than the width of the hook. Sew the hook securely to the interfacing and the skin (fig.11). The area can be streng-
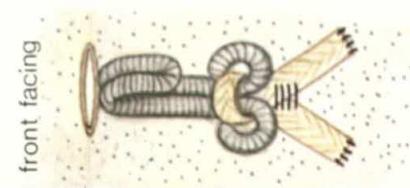
11. Reinforcing tape through hook.

thened before sewing the hook in place by slipping a piece of tape through the ends of the hook, crossing the ends over and sewing to the interfacing and skin as shown. Gently ease the hook through to the fur side (fig.12). Attach
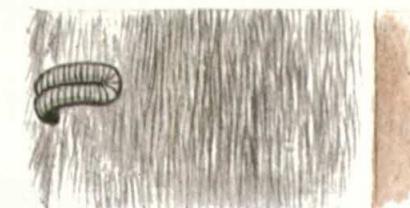
12. Ease hook through hole to fur side.

the eye in the corresponding position on the opening in a similar way.
For garments without a facing, attach the hooks and eyes to the twill tape before attaching the lining.
Crocheted ring. If a crocheted ring is used instead of an eye, this may simply be sewn to the fur side of the garment. However, for a stronger fastening, cut the skin as for a hook and insert a piece of twill tape through the ring. Pull the ends of the tape through the opening to the skin side, bringing the edge of the ring to the cut edge of the skin. Cross the ends of the tape and sew to the interfacing and skin.
**Buttons and buttonholes.** Mark the position of the buttonhole on both the facing and the garment and cut a slit, working from the flesh side and cutting through the interfacing.
Cut two pieces of tape the length of the buttonhole plus 5cm (2"). Sew flat

to either side of the slit on the flesh side with overcasting stitches.
Turn the garment to the fur side and overcast further strips of tape or grosgrain ribbon to the slit edges. Turn the tape through to the flesh side and sew to the previous tapes and to the flesh side with running stitches (fig.13).
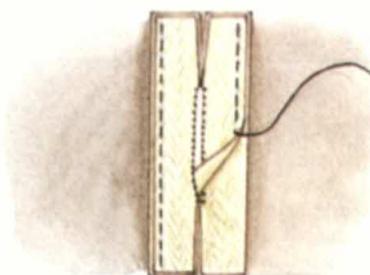
13. Double tape strengthens buttonhole.

Finish the slit on the facing in the same way using two bindings and sew them together, working overcasting stitches around the slit.
Mark the positions for the buttons and sew on securely with button thread, reinforcing the underside with a flat 25mm (1") button. Make sure that the thread shank is long enough to allow for the thickness of the fur.

Set-in pockets

These are made in much the same way as buttonholes except that the slit is naturally made long enough for a pocket. The pocket sections are cut from lining fabric, stitched together and sewn securely to the twill tape on the inside of the garment (fig.14).
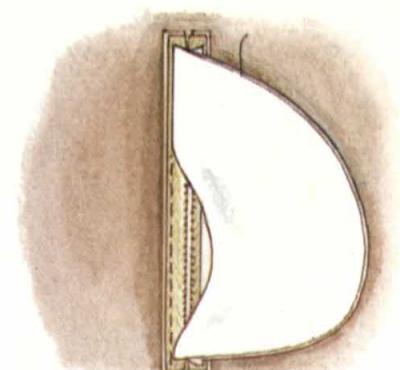
14. Stitch assembled pockets to tape.

Lining

When cutting out the lining, remember that if you have eliminated any facings this subtraction will need compensating for by adding extra length to the neck of the lining pattern. Also remember, when adding this to the lining pattern, to allow for the centre back pleat. Otherwise the lining is made up in the conventional way and then slip-stitched to the taped edges so that all the tapes are concealed.

Barbara Firth

Introducing air brush painting

The air brush works in the same way as a paint sprayer but on a much smaller scale. A very fine spray of colour (ink or paint) is propelled on to a surface by a current of compressed air.

The advantage of using an air brush is that the fine, even spray enables you to achieve special effects which could not easily be made with a paint brush. Smooth gradations of colour from light to dark or from one colour to another can be made by spraying some areas more than others or using different coloured paints. Air brushes are used for illustrations and paintings, lettering, graphics and in other fields such as ceramics, glass, cake decoration, pottery and model making.

Air brushes

Although straightforward in its mechanical operation the air brush takes considerable skill and a very great deal of practice to learn to use it to its full advantage. Therefore it is not a worthwhile investment unless you are prepared to devote a lot of time and practice to mastering it. For perhaps these reasons it is as yet infrequently used by the amateur. However it is an interesting and versatile form of art that is being used more and more by artists and illustrators.

Air brushes can be purchased in most large art shops and come in a variety of makes and prices, though even the cheapest is still fairly expensive.

An air brush (below) looks rather like a pen and is held in the hand to direct the spray of paint; a small cup to hold the ink or paint is attached to the top or side.

Pressurized air can be provided by either a compressor or a canister of compressed air. The air is conducted through tubing into the pen and out through a very small hole in the front of the pen. As the compressed air travels through the pen it sucks a small amount of paint out of the cup and this emerges as a fine spray. At the front of the pen there is a nozzle which controls the size of the spray. Special nozzles can be bought to produce different types of spray.

Compressors. For an air brush it is not necessary to have a very powerful compressor—as long as it can provide pressure of about 2 atmospheres (30lbs per square inch).

However, even small compressors are rather expensive and it is not worth buying one unless you intend doing a lot of air brush work. A cheaper alternative are the canisters of compressed air such as those made by Friskair. The pen is attached to these by a rubber tube and a screw fitting. The fitting depresses a valve in the top of the canister and the air pressure is released into the pen. When the fitting is unscrewed, the valve prevents the air pressure escaping. When the canister has run out, it can be thrown away and another purchased.

Using the air brush. The professional will use an air brush on paper, pottery, glass, metal, fabric—almost any surface provided the appropriate type of

Some of the equipment necessary for air brush painting.
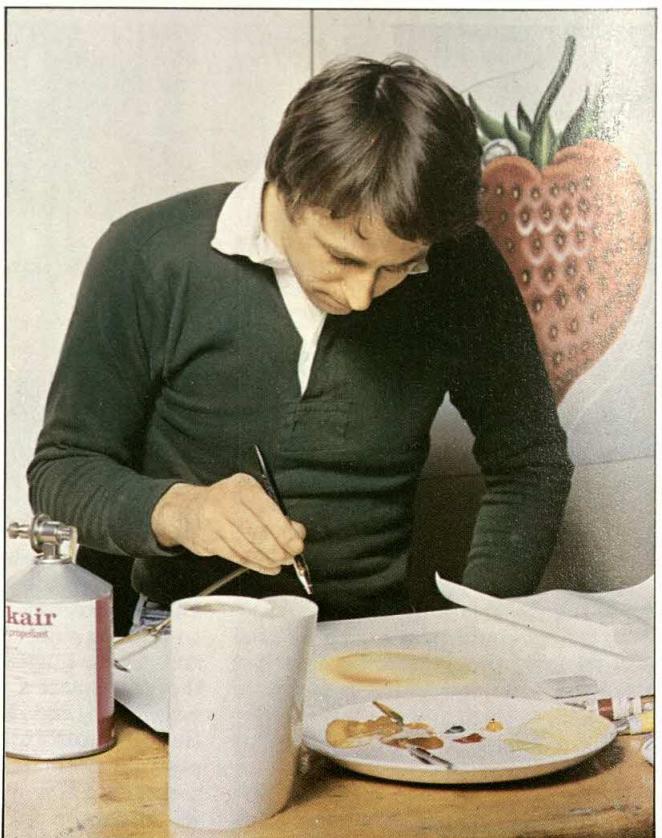
An air brush spray gives soft blurred edges to the colour.

Dick Miller
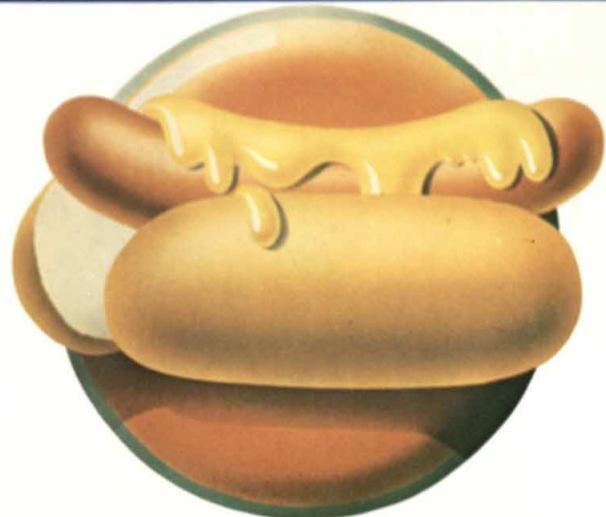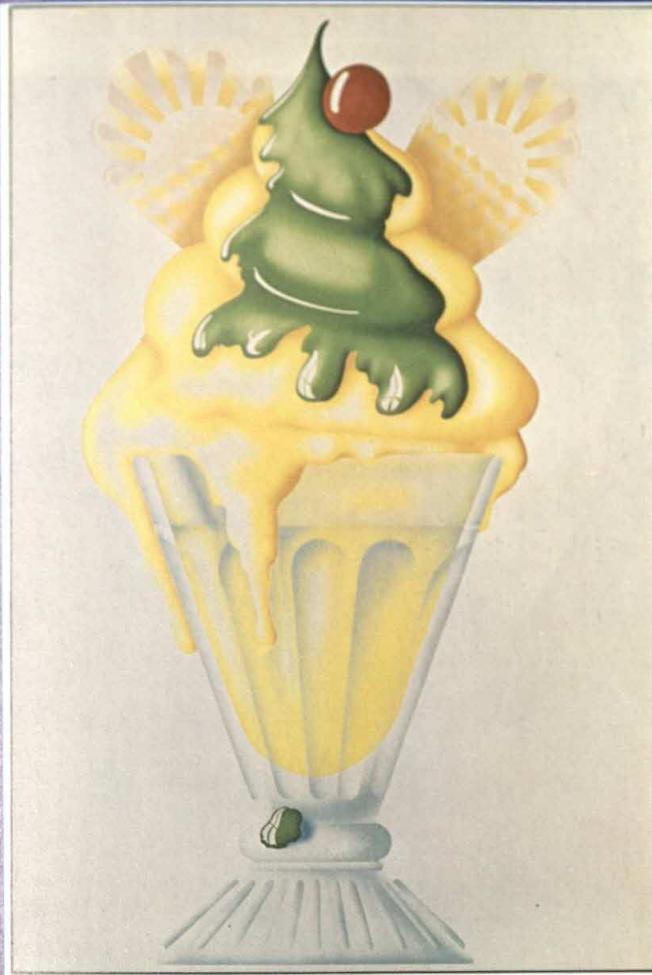
Three colourful air brush paintings by Wurlitzer Studios.

ink, dye or paint is used. Fabric dyes, enamel paints and glass paints can be used as well as ordinary water base paints as long as they are diluted to a consistency that can be used in the pen. An important point to bear in mind is the maxim 'oil and water don't mix'. Therefore keep your air brush exclusively for either water base or oil base paint. Once you have used oil base paints in your air brush do not expect to be able to use water base paints later.

Whatever type of paint you use it is essential to clean the air brush immediately you have finished with it. You should always use good quality paint, as any particles or impurities in the paint can block the air brush.

When learning air brush techniques it is wise to start by using a water base paint such as designers' gouache. The consistency of the colour is all important, and it is better to produce dense colour by several coats of thin paint than by using one coat of thick paint. To start with, mixing the correct consistency of colour will be a matter of trial and error. If the paint is too thick the spray will spatter, and the pen may even clog up altogether. If this happens, add more solvent to the colour until it is the right consistency. When the cup is filled with paint or ink and the pen attached to the air supply, it is ready to use. On the top of the air brush there is a small 'trigger' which can be pulled back and pushed down. To release the air the trigger is pulled back and to increase the flow of colour it is pushed down. The pen is held exactly as you would hold an ordinary pen and the trigger is operated by the index finger. A useful exercise for the beginner is to mark out a sheet of paper with a series of dots and practise aiming the air brush accurately at these, and from there progress to drawing thin lines.

Masking. An air brush spray will give soft blurred edges to the colour. To obtain sharp, clean edges of colour it is necessary to mask off the areas you do not want to be coloured. There are many ways of doing this—three are mentioned here.

You can use transparent adhesive film such as Frisk Film which can be cut to the required shape and peeled off after painting. To use this cut a piece of film to the required size, stick down and then cut out the exact shape to be coloured using a sharp knife such as a Swann-Morton scalpel. Spray the ex-

posed area with the required colour and then peel off the film.

An alternative method of masking areas is to use a special masking paint such as Maskol (this cannot be used on fabric). This is painted on to the areas to be masked and left to dry. Because the paint is rubber based, when dry it forms a flexible, rubbery film which can be peeled off. The air brush can then be used on the exposed areas and the masking solution can be removed, revealing the unpainted area underneath.

A more basic method of masking is to use shapes of ordinary paper placed on the areas to be masked and spray over them. This method is useful for detailed designs.

To clean the colour out of the air brush before using another, or when you have finished using it, fill the cup with the appropriate solvent water turpentine or whatever—and spray until the spray is colourless. It is essential that the pen should be cleaned thoroughly, especially when you have finished using it. Particles of dry paint in the air brush will prevent it working properly when you next want to use it.

Effects. Overleaf are some effects that can be achieved with an air brush.
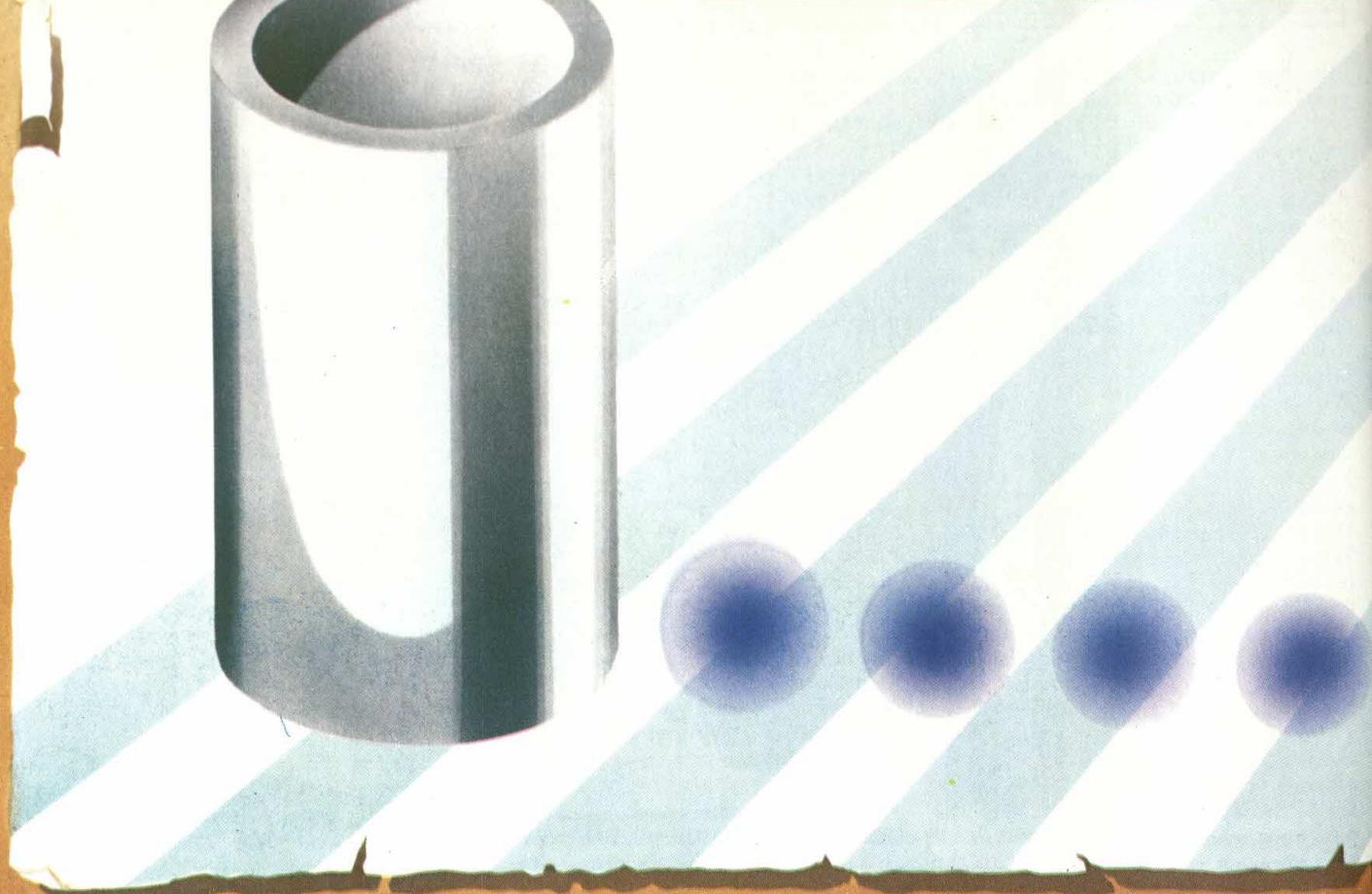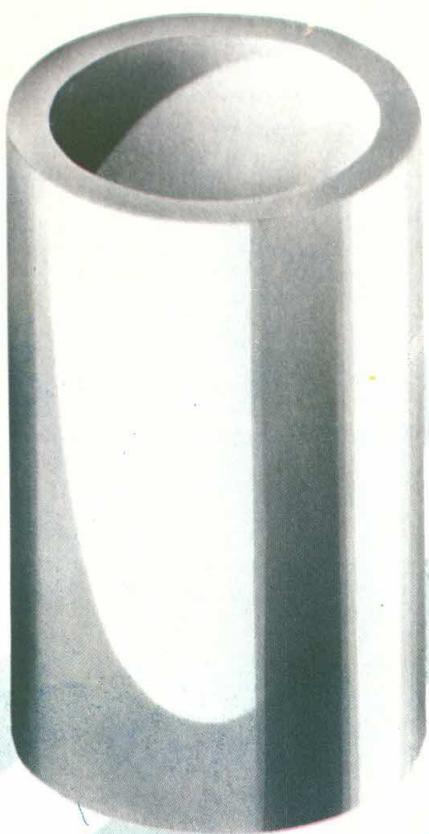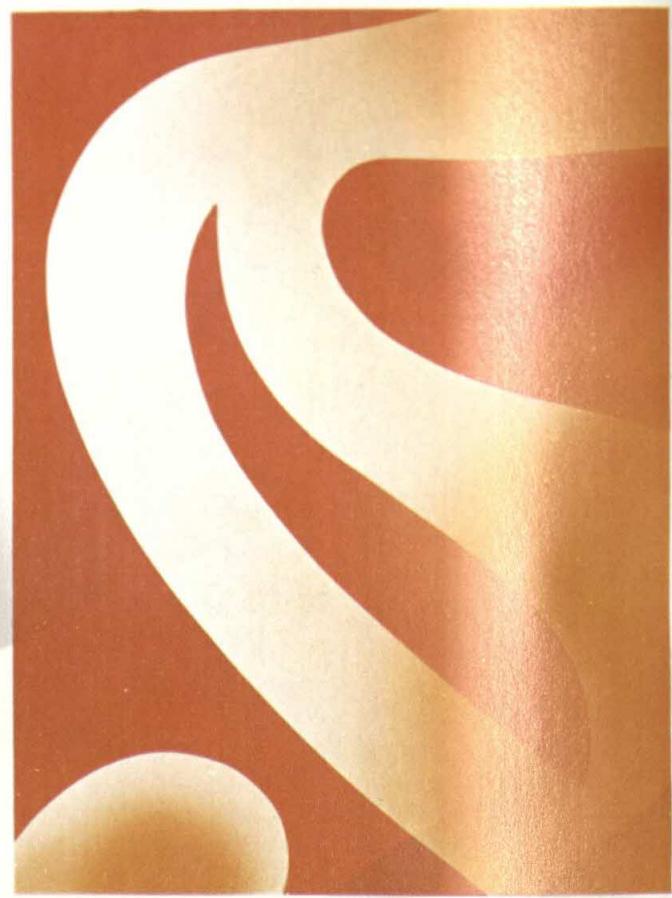
Once you have mastered the air brush technique it is possible to create a wide variety of interesting and colourful effects. A few possibilities are shown here.

Trevor Lawrence

Cane chair seating

Caned chair seating dates back to ancient Egypt and, although nothing was written about the technique until this century, early artefacts such as Tutankhamun's day bed show that the method has changed very little.

Caned furniture has been fashionable over the centuries, but especially during the past three hundred years. In the 18th century finer cane than was previously used became available in

Transworld

Europe, and elegant cane-bottomed chairs by cabinetmakers, such as Adam and Hepplewhite, were the result.

Caning reached its greatest popularity in the 19th century with the development of bent-wood furniture, and in Vienna one factory produced 400,000 bent-wood chairs in a year. Bent-wood furniture is popular again and pieces which need re-caning can often be bought cheaply. For this reason, as well as the innate pleasure of working with cane, it is a craft worth pursuing. Do not be too ambitious in the early stages however—leave antique chairs alone until you become experienced at handling and weaving cane. Start with a square or oblong shape before attempting more complicated ones.

Materials

The materials required are readily available and apart from the cane very little else is required.

Cane. Chair seating cane comes from a creeper which grows in South East Asia. It is a member of the rattan family and grows to enormous lengths. The bark has sharp barbs; but this outer bark is discarded. Underneath is a hard, shiny inner bark and it is this which is used for caning chairs.

The cane comes in two qualities and various sizes. Blue tie is the best quality cane and is used for antique chairs, but red tie is suitable for most other chairs.

The cane is available in six sizes which are numbered from 1 to 6. The thinner the cane the smaller the number. Two different sizes of cane are often used on one chair; the most common sizes are No.2 and No.4. The size of the cane required depends on the distance between the holes on the chair frame. The usual distance between holes is 12mm ($\frac{1}{2}$") making the frame suitable for the ever-popular seven-step pattern illustrated in the photograph.

If the holes in a frame are closer together than 12mm ($\frac{1}{2}$") the cane will become crowded, making it difficult to work, and No.2 and No.3 must be used instead. For very fine work use No.1 and No.2. If you are re-caning a chair, take a sample if possible and purchase a similar-sized cane.

Although two sizes of cane are traditional, most people—for reasons of economy—will prefer to use only one size of cane (unless a large number of chairs are being re-caned). This is because one bundle of cane will be more than sufficient for caning one chair; working with different sizes will mean left-over material unless several chairs are being caned.

Pegs are required for chair seating.

Left: chairs caned in the ever-popular seven-step pattern.

They are used to hold the cane temporarily during the weaving although some are left permanently to secure odd ends or to plug 'blind' holes. Any pointed 5cm (2") sticks are suitable, as is thick cane if you have it. Alternatives, for temporary pegs, are golf tees and Rawlplugs.

Tools

There can be few crafts that require less tools and most of the tools are part of any household, or can be improvised.

Scissors—to cut the cane. Any size will do as long as they make a clean cut.

Knife—also to cut the cane where the scissors cannot reach; can also be used to make and point the pegs.

Clearer—this is used to clear the holes. A 7.5cm (3") nail is suitable if the pointed end is cut off. Similarly a metal knitting needle or a screwdriver can be used—the diameter of the tool should not be more than 3mm ($\frac{1}{8}$").

Bodkin—a small fine bodkin is very useful to help the cane through tight spaces, but you can make do with a hat pin or a large rugging needle.

Small hammer—for rapping the knots flat at the finish and for tapping the pegs into holes.

Preparing the chair

A chair must be stripped of all its old cane and any repairs to the frame must be done before re-caning is started. The frame must be sanded and varnished or painted, as this is not possible once the weaving is started.

The old cane can be cut away close to the frame and kept for reference—this is especially useful if the shape is irregular. Alternatively, before removing the old cane make a sketch of the frame, marking the holes and the number of canes from each hole and their direction—this is particularly useful for round and oval shapes.

Remove all the old cane from the holes and underneath the seat. If the caning has been pegged, knock all the pegs out of the holes using the clearer. If the pegs are very stubborn and will not come out with gentle tapping, it is less strain on the frame if you drill a hole in the peg—use a drill bit the same size as the existing holes.

Sometimes corner holes are 'blind', ie they do not go right through the wood. In these cases the pegs must be drilled out to clear the original hole. Once all the old cane is stripped, the holes cleared and the frame painted or varnished, you can start weaving.

Seven-step pattern

If you are working on a square or oblong frame this pattern is simple.

Preparation. The cane must be prepared before it is used. You will find it

easy to handle the cane if you dip it in hot water for a moment before using it. Keep the cane wet while working by passing it through a bowl of water. The cane will also absorb enough water if you dip your fingers in the water and stroke the underside of the cane (not the glossy side) occasionally. While dry cane is very brittle, and cracks and splits easily, you should never soak the cane or it will become discoloured, nor should you wrap it up in a damp cloth for later use—it's so easy to dip each piece just before using it.

One word of warning—be careful not to tread on the cane (the lengths of the cane make this very easy). The cane will split lengthways and a split, once started, has a nasty tendency to creep up the length. Discard split pieces— they will spoil the appearance of the chair. Prepare the cane as you need it.

Step 1—the first setting. Starting at
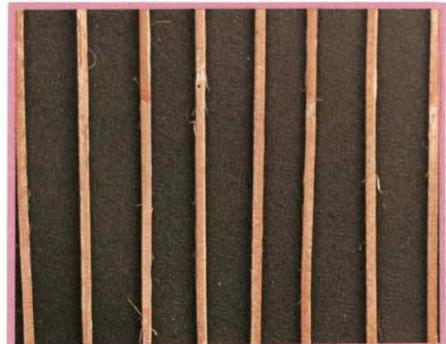
The first step of the pattern.

the back, on the left, insert one end of the cane (if weaving with two sizes, use the thinner one) into the hole next to the back left corner hole.

Allow 10cm (4") to protrude underneath the frame and place the cane so that the glossy surface is facing up when the cane is placed across the frame. Peg the cane in the hole so that the cane is held firmly (fig.1).

Take the long end of the cane down
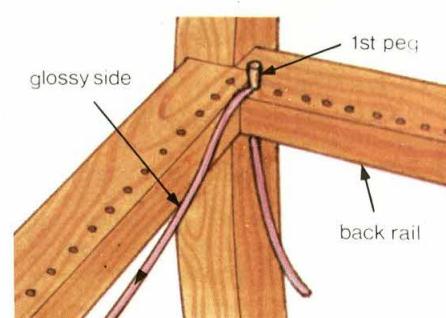
1. Peg end to start the first step.

through the hole at the front next to the corner hole. Make sure that the glossy side of the cane remains up and that there are no twists in the cane. Also make sure that the cane is not

Paul Williams

Step 1 ▬
Step 2 ▬
Step 3 ▬
Step 4 ▬
Step 5 ▬
Step 6 ▬
Step 7 ▬

2nd peg

3rd peg

front rail
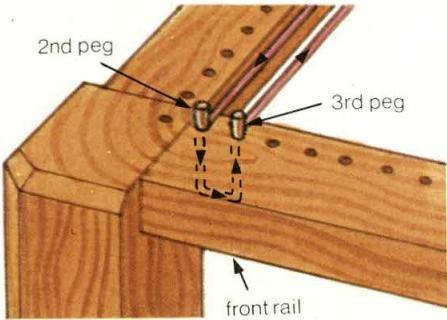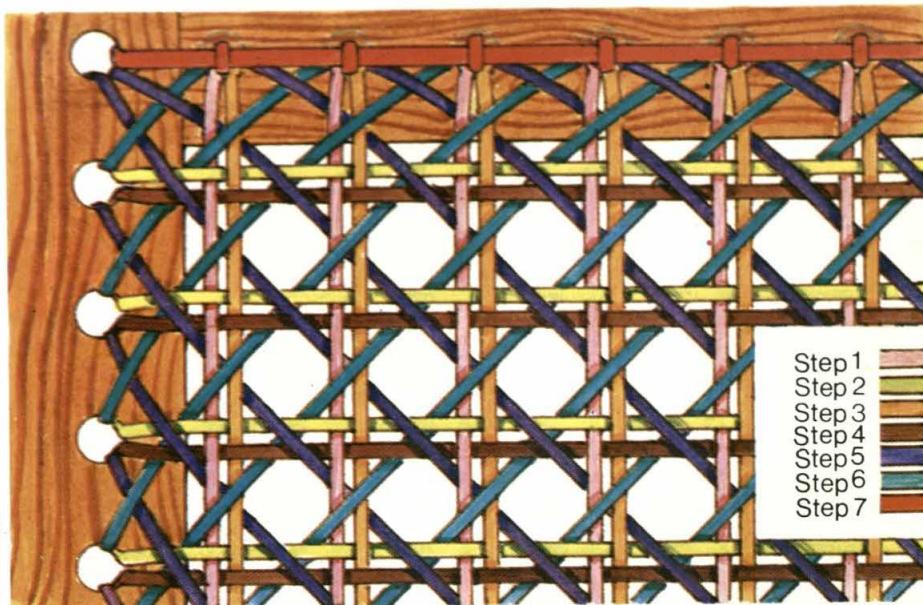
2. *Top: detail of seven-step pattern.*
3. *Bottom: Cane temporarily pegged.*

twisted as it goes through the hole.
Pull the cane fairly tightly and peg it.
(For detail of pattern, see fig.2).

The cane is now brought up through
the next hole, untwisted, glossy side
always facing—even on the underside
of the frame. Pull tight and secure with
another peg (fig.3).

The cane is now passed to the opposite
side to the hole next to the starting one.
Take the third peg (or remove second
peg) and use it to peg this hole.

The first peg is holding the cane end
but each successive peg is taken from a
hole to 'travel' with the weaving.
Continue going backwards and for-
wards until the end is reached.

If the cane runs out, leave the end
protruding from the underside and
leave a peg in the hole to hold the cane
securely until the ends are finished off.
Then start a new length of cane in the
next hole just as you started the first
cane. Always leave 10cm (4″) protrud-
ing from the underside, for old and
new lengths of cane.

Keep the tension fairly tight and even.
Do not make it too tight—each suc-
cessive stage tightens the work—but
do not make it too loose either; the
work must never sag of its own accord.
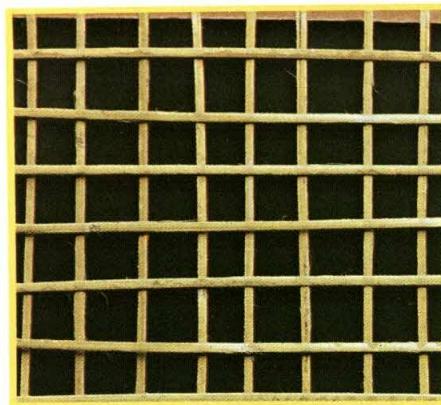
The second step of the pattern.

Step 2—this is worked exactly the
same as the first stage but going over
the first step at right angles.
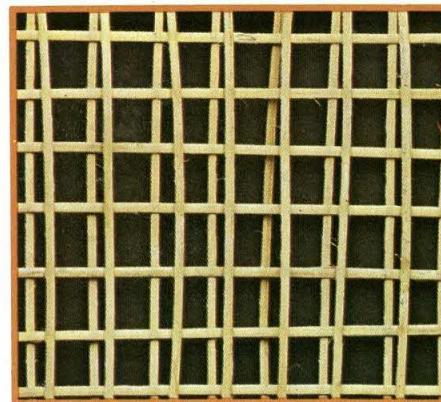
The third step of the pattern.

Step 3—the second setting. The first
step is repeated on top of the previous
two steps.

The next step will be made easier by
positioning the cane in this step so
that it does not lie directly on top of
the first step but is parallel to it—keep

to the right of the first step, especially
at the holes (fig.4).

1st step

3rd step

2nd step
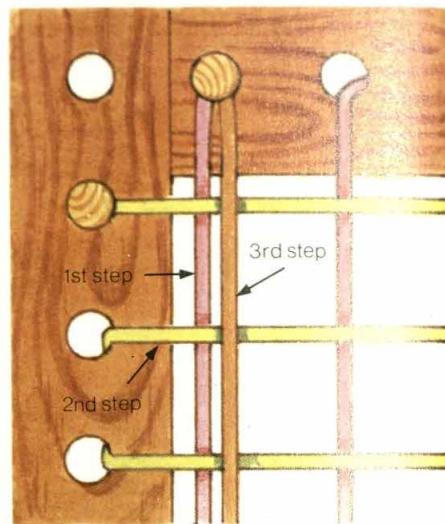
4. *Step 3 is parallel to first step.*

Try to plan the work so that you use
the spaces on the underside of the frame
that were not covered the first time.

Tying in the ends—see also Finishing
ends. You can tie in the ends, if you
wish, as you work. Pass the new end
untwisted twice over the short strands
on underside between holes (fig.5).
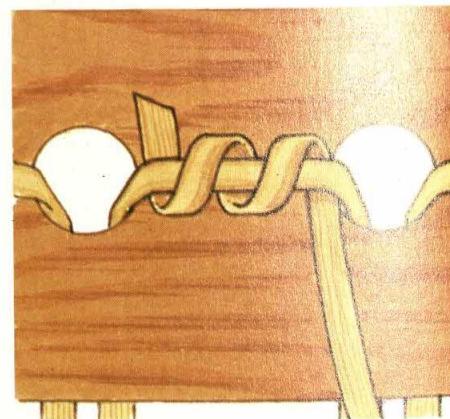
5. *Tying in on the underside of chair.*
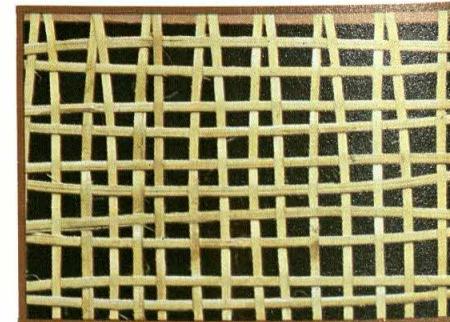
The fourth step of the pattern.

Step 4—is a repetition of step 2 but,
unlike step 2, the cane must be woven

under then over the vertical pieces (not over and under). This step takes longer than any of the other steps. Run your fingers along a length of cane in both directions, and then use the cane so that it will be woven in the direction which feels smoother.

Start as in step 2 and peg one end. The cane must now be kept untwisted and the right way up. Starting from the fixed end, run the cane through your fingers, keeping it untwisted all the way to the working end. This is very important as there is no way of untwisting it once it is woven unless you unpick it.

Having untwisted the cane, thread the end underneath the cane of the first setting (the one on the left) up between the two vertical canes and over the second setting.

Repeat with each pair of canes as you reach them. Do not pull the whole length of cane through until you have passed six pairs. As you pull the cane through it will flatten, straighten and tighten the work. Continue, backwards and forwards, joining in as required and pegging protruding ends.

Keep the pattern correct—remember that in this step the weaver always goes under the first setting and over the second.

Don't worry too much about making the lines neat and tidy with close little squares—the next two steps will do this.
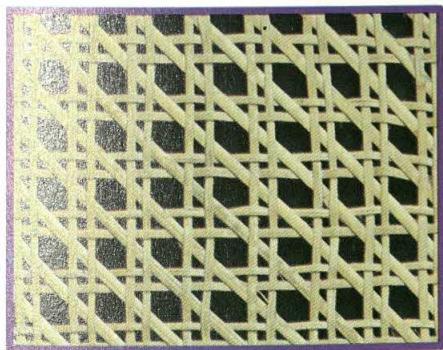
The fifth step of the pattern.

Step 5—the first diagonal. If you have been using thin cane now is the time to change to the next size (otherwise continue with No.4).

Peg the cane end in the back left-hand corner. Start weaving over the first pair (horizontals), move over to the right by going under the vertical pair then over the next horizontal pair etc. The weaving appears to be done in 'steps' but once it is pulled through tightly it forms a diagonal line (see fig.2).

If the chair frame is square you will end in the opposite corner, otherwise thread it into whichever hole that has been reached.

Bring the untwisted cane up through the next hole in front to the left and weave back. Keep the pattern correct —*over* horizontals and *under* the verticals.

Weave like this until you finish off in the corner by passing straight across from one hole to the other.

Go back to the starting hole and start another cane (the corner holes are used twice) to fill the remainder of first diagonals. Go under the verticals, over horizontals, as before.

Complete this weaving then check and make sure that the pattern is correct. Remember the only way to correct errors is to unpick the weaving.

The weaving is usually easy, not needing tugging and pulling—if you find that you are having trouble check again that the pattern is correct.
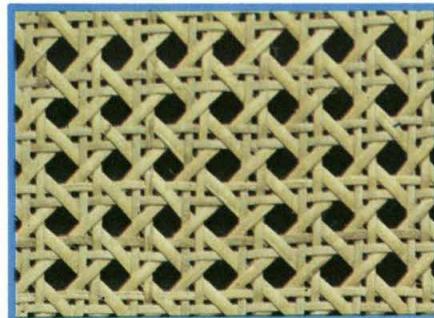
The sixth step of the pattern.

Step 6—the second diagonal. This is exactly the opposite to step 5. Start in another corner and weave at right angles to the previous diagonals. Corner holes are used twice again. This time the weavers go *under* the horizontals and *over* the verticals.

Finishing ends. By now the frame will have quite a lot of pegs holding various lengths of cane. These can now be tied if you have not done so already.

Dampen the ends to make them pliable. Cut each end to a point. Thread the end twice under a loop that is lying adjacent to it—use the bodkin if necessary to gently ease the cane into position. Keep the ends untwisted, glossy side outwards. Tap the 'coil' gently with a hammer to flatten it and cut the end off close.

If you have three or four ends coming out of the same hole, tying in can be awkward. Pass the cane to be tied under an adjacent loop then take it back under itself and cut off the end.

Pegs are used in blind corners and in holes which hold loose ends which cannot be tied in position. The pegs must fit tightly and once tapped in position they must be flush with the chair frame. If you are going to cover the frame holes with a cane beading, don't do this pegging until the beading is in position.
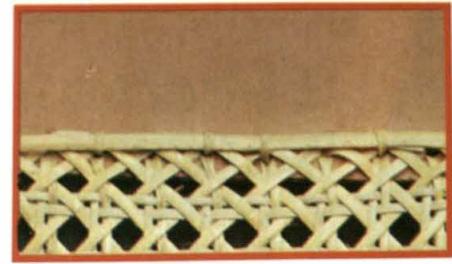
Beading—the seventh step.

Step 7—beading is a fairly modern addition and is an optional extra—it is a length of cane positioned around the outline of the weaving. It can be put on with two different-sized canes, usually No.2 and No.6 although there is no set rule and No.4 can be used.

The thicker cane is laid over the top of the holes and so hides them. The thick cane is couched down with the thinner cane. Beading is combined with either pegging or tying in. Tie in before starting the beading.

Start the beading by inserting a length of No.2 cane into a hole next to a corner. Allow the end to protrude 3cm (1½″) towards the top. Bend this end down into the next hole and bring the long end up through the same hole. This method will secure the short end. Insert a length of No.6 cane down into the same hole and position it so that it lies over the holes along that side of the chair frame.

Pass the thinner cane over the thick cane and take it down the same hole. Pass this thin cane to the next hole on the underside—always untwisted, glossy side facing—and up through that hole. Take it over the thick cane and then down the same hole (fig.6).
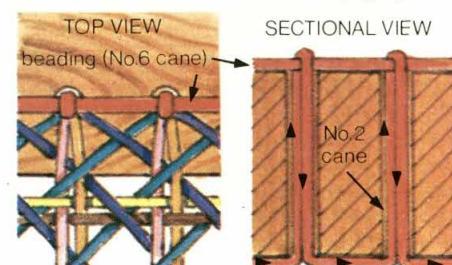
6. Couching beading into position.

Continue to the corner hole and insert the thick and the thin cane into this hole. Start the two canes for the beading along the adjacent side before pegging the ends finally. Repeat this all round to complete the beading.

Finally trim all the ends underneath. Make sure that all ends are tied or pegged before doing this.

If the holes are very close together you will find it easier to do the beading with No.4 cane, otherwise couch the thick cane down through alternate holes instead.

Patterns in plain weave

Plain weave or tabby weave is the general term for the simplest of the three basic weaving structures (the other two are twill and satin). Because it uses the maximum interlacement of threads by following the over one, under one structure, it is the strongest of the three (although this factor is not always important in plain weave fabrics).

Plain weave has many and varied uses. Very fine fabrics such as chiffon, organdie, muslin and lawn; light-weight fabrics such as shirtings and sheetings; medium-weight dress and furnishing fabrics and coarse or heavy cloths such as blanketing, upholstery sacking and tarpaulins can all be plain woven.

Variations. The basic definition of plain weave is a cloth in which alternate warp threads pass over and under alternate weft picks.

Three basic variations of plain weave are weft faced, balanced and warp faced. Tapestry is an example of a weft-faced plain weave in which the warp does not show in the final fabric. A warp-faced cloth such as inkle braids has the reverse relationship (the weft does not show). The third type, and the most widely used, is balanced plain weave. As the name implies, the warp and weft yarns show equally and, in a completely balanced cloth, are of the same thickness, quality and ply.

In the previous chapters dealing with weaving lengths of cloth, balanced plain weave was used.

Both the scarf (Weaving chapter 21, page 1784) and the poncho (Weaving chapter 23, page 1842) use balanced plain weave.

Density. There are two variations which can be applied to each of the above weaves (and to all other weaves). One is the relative openness or closeness of the threads and this determines the hardness or softness of the weave. The kind of thread and the tightness or looseness of its twist will also determine the resulting kind of cloth, ie whether it is loosely or tightly woven.

Medium-balanced cloth
The sett for balanced plain weave is therefore determined by two factors— the type of yarn being used and the openness or closeness of the fabric. To make a medium type of cloth such as a dress or skirt fabric, a medium-weight woollen yarn such as a 6 to 9 count (or cut count) should be used in both warp and weft.

Because the cloth is to be balanced, the warp and weft threads will show in equal proportions. Therefore, the warp will have to be spaced to allow the weft to bend over and under the alternate ends. A good guide is to wrap the yarn around a ruler so that the threads touch each other firmly but without being packed too tightly together, until 2.5cm (1″) has been wound. Count the number of turns around the ruler and divide this number in half. Make the warp with this final number of ends per 2.5cm (1″).

Reed dentage describes the number of dents per 2.5cm (1″) in a reed. Because the final warp sett depends on the reed dentage available, an adjustment to a more convenient warp sett may be required. For example, the yarn may wind to seventeen threads per 2.5cm (1″) which would give you an impractical warp sett of 8½ threads per 2.5cm (1″). Therefore, depending on the reed, a sett of eight or nine ends per 2.5cm (1″) with an eight- or nine-dent reed could be used. A sett of either eight or nine ends could also be obtained with a twelve-dent reed by either threading two dents and leaving every third dent empty, or by threading three dents and leaving every fourth dent empty.

Looms. Plain weave can easily be woven on any type of loom. Only two shafts are necessary although many people use the standard four-shaft loom.

Weaving. To obtain a square set of balanced cloth, beat the weft sufficiently hard when weaving to produce the same number of picks to 2.5cm (1″) as ends per 2.5cm (1″) in the warp. This should be checked with the warp off tension (ie the roller released) after you have woven about 5cm (2″). When the correct beat has been established, count the number of picks per 2.5cm (1″) when the warp is at weaving tension. This will be slightly less and this is the sett to maintain during weaving.

A superb bedspread, hand woven in plain weave. Designed by Lore Youngmark.

David Levin

Paul Kemp
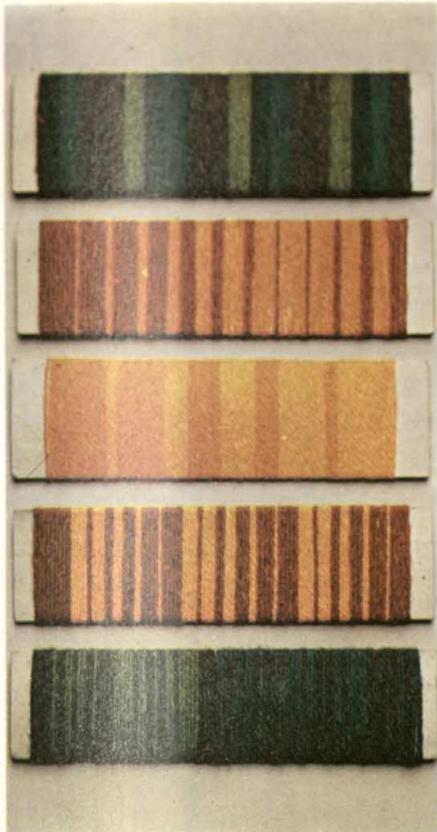
Test out colour contrasts on card.

David Levin

Colour

Plain weave is particularly suited to experimenting with colour in weaving. When a colour from the warp crosses a different colour in the weft a third colour effect is created made up of flecks from each of the two master colours.

As colour in weaving works in a way very different to colour in painting, it is a good idea to make yourself a colour gamp as a guide to mixing and combining colours.

A colour gamp is a small blanket or shawl which uses all sorts of colour combinations. It is named after Charles Dickens' character Mrs Sarah Gamp, who carried a brightly coloured umbrella. To produce a basic colour gamp, make a warp using as many colours as possible in the same type of yarn. At least 5cm (2″) of each colour should be warped to achieve a good effect.

For the first experiment, it is advisable to use the colour spectrum of red, orange, yellow, green, blue and white. Other samplers can use variations of shades or tones of the same colour range or the same colours but in different yarns. (The bedspread shown is a fine example of a massive colour gamp.) Weave the weft using the same colour sequence in the same proportions as the warp to produce squares of self colour with combinations of all the other colours.

Because of take-up and weave differences, it is not advisable to mix various types of yarn in the warp. A number of colour gamps can be woven on the same warp with each colour sequence in a specific type of yarn in the weft. To experiment with both colour and texture, put on a very long warp and make several different gamps.

Stripes and checks

Interesting arrangements of colours in the warp and a single colour in the weft will result in warp stripes and vice versa if the colours appear in the weft.

Stripes. To produce a thin stripe or line in a contrasting colour on a plain cloth, at least two threads of the same colour must be used side by side either in the warp or weft. A single thread will give a dotted line because of the over and under weaving sequence.

Successive narrow stripes will result by warping two threads each of two different colours and using a single coloured weft. Alternatively use 2 picks each of the different colours in the weft and warp loom in one colour. For broader stripes increase the number of threads of one colour in the warp before changing colour.

Planning stripes. Stripes can either be planned on paper using proportionate areas of colour or, more effectively,

Stripes in neutral colours can be very effective. Designed by Mike Halsey.

by wrapping the coloured yarns around a piece of card. To obtain a more accurate indication of the stripe effect, wind at least two repeats of the colour sequence. Remember that the choice of weft colour will alter the final colour of the warp stripes or vice versa. Light colours mute or tone down bright ones, while dark ones have the opposite effect. If the weft or warp colour is the same as one of the colours in the stripe, then some areas will appear bolder than the others. Experimenting with a colour gamp will help you to find out which colours are altered drastically.

Shading. By changing them in gradual progression, the colours can be shaded into each other, eg 6 threads colour A, 1 thread colour B, 5A, 2B, 4A, 3B, 3A, 4B, 2A, 5B, 1A, 6B. This is effective with closely related colours as well as contrasting ones. Broader shadings can be made by progressing in larger steps, eg 20A, 4B, 16A, 8B, 12A, etc.

Plaid. If the colour arrangement is used in both warp and weft, plaids or checks are formed. In the scarf shown in Weaving chapter 21, just such a plaid effect was created by the controlled arrangement of colour in both warp and weft. Even with a limitation of two colours, an enormous number of variations is possible.

Colour and weave designs

If you use the same colour sequence of stripes in the weft as in the warp, then checks will appear in the cloth. However, if different colour sequences are used in the warp and weft, patterns begin to emerge as the colours in the weft cross over and under the colours in the warp. Some of the classic weaving patterns such as log cabin or a hound's-tooth (figs.1 and 2) are created merely by the arrangement of two colours in a balanced plain weave.

Chris Lewis

Detail of a colour and weave sampler.

Sampler. The best way to discover patterns and to design your own is to make a colour and weave sampler. This is a piece of cloth in two colours which has a number of different colour arrangements in both warp and weft. As the two colours cross each other different patterns are created (figs.1-2). Individual patterns can later be selected as a repeat design in the creation of highly personal fabrics.

A colour and weave sampler will illustrate the availability of pattern making in a balanced plain weave and can be developed, if you wish to experiment, to give an even greater variation of simple patterns.

When weaving a sampler choose two colours that contrast well in yarn of the same count. Divide the warp into sections about 5cm (2") wide and vary the arrangement of the two colours within the sections. A typical colour and weave sampler would follow the sequence in the chart. A represents one colour, B the other.

Section 1—all A.
Section 2—5 ends ABABA.
       5 ends ABABA. etc.
Section 3—AABBAABBAABB etc.
Section 4—ABBABBABB etc.
Section 5—AAABBAAABB etc.
Section 6—AAABBBAAABBB etc.
Section 7—All B.

The sampler is woven in plain balanced cloth, repeating the warp colour order in the weft and using exactly the same colours. The resulting cloth has 49 small squares, each with a different pattern.

Generally, these patterns are used for dress fabrics but some of the bolder ones suit upholstery fabrics. Usually only one of the pattern sections is used as an all over repeat but more could be used in combination for more complex patterns.
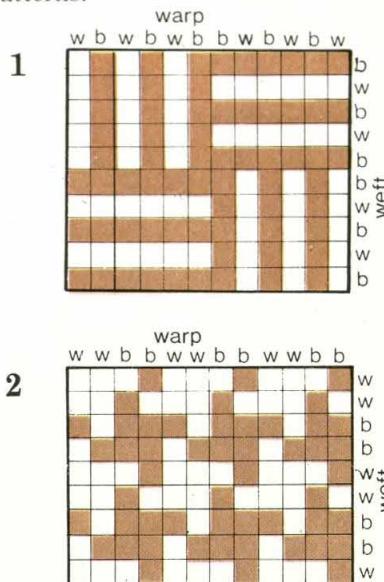
1-2. Two popular colour and weave patterns, log cabin and hound's tooth.

The tabard

An example of using sampler patterns is shown in the tabard opposite.

The tabard is made from a straight strip of cloth 50cm x 145cm (20"x 58") actual weaving length, with an opening in the centre for the neck. This will give you a finished length of about 135cm (53") when the piece is taken off the loom.

You will need:
225-352gm (8-12oz) each of dark blue (B) and turquoise (T), to ¾ count woollen yarn.
4 or 8 dent reed.
Loom and accessories.
Warping equipment.
Three shuttles.
☐ Warp up 83 threads 200cm (83") long following the colour chart.
☐ Put the warp on the loom with a sett of four ends per 2.5cm (1") and with two threads at each end acting as a selvedge.
Back: follow the pattern in fig.3 when weaving. Weave 7.5cm (3") in colour T then, using the same colour sequence as in the warp, weave the complete sequence to form a square of patterns. Use one shuttle to hold colour B and another to hold colour T. As you should be weaving a balanced cloth this sequence should be about 50cm (20").

3. Weft pattern chart for the tabard.

☐ Weave 2.5cm (1") in colour B.
☐ Wind up the third shuttle with colour B.
☐ Using the shuttle that you have been working with, weave from the selvedge to the centre thread.
Neck opening. Following fig.4 take shuttle around the centre thread up out of shed. (Leave it in the centre on top of your weaving.)
☐ Start weaving from the other selvedge with your other B colour shuttle. Weave around the centre thread and take it up out of the shed.
☐ Change shed and return both shuttles to their respective selvedges.
☐ Continue weaving in this manner for 5cm (2") but take the shuttles one thread further on past the centre thread each alternate pick.
☐ After this 5cm (2") of strengthening joining weave, work each half of the warp in separate strips, using one shuttle per strip. Do not weave around the central thread, however, leave it unwoven in the centre of your loom.
☐ Weave the two halves separately for 40cm (16").
☐ After this 40cm (16") weave another 5cm (2") of strengthening joining weave in reverse (see fig.4).
This joining weave strengthens the fabric at either end of the slit.
Front
☐ Weave a further 2.5cm (1") in colour B.
Only half of the pattern sequence is repeated on the front of the tabard.
☐ The first half of the colour sequence has now to be woven. Follow warp chart and work from centre line. But

Coral Mula
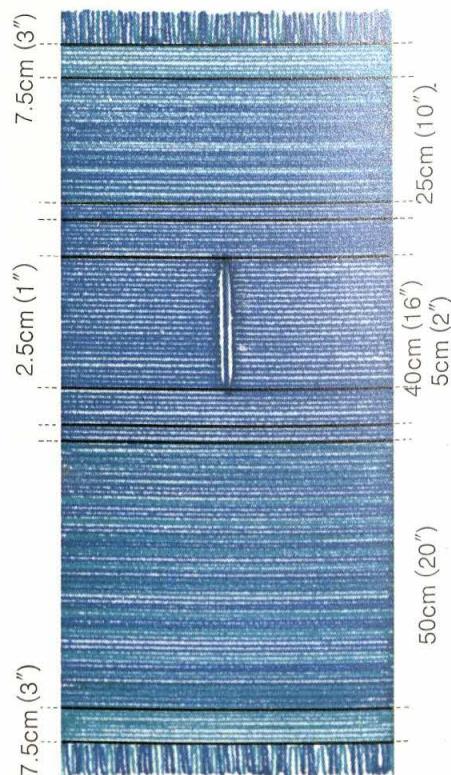
first weave one pick in colour T, one pick in B and one in T.
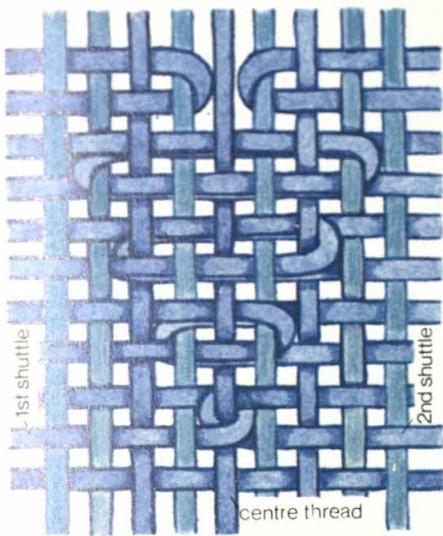
4. *Strengthening weave before slit.*

□ Weave one pick in colour B. This is the centre thread of the colour sequence. Follow the first half of the colour sequence from the centre thread back to the beginning.

□ When the sequence is complete, weave 7.5cm (3″) in colour T.

Finishing

□ Remove the cloth from the loom leaving warp for fringes each end.

□ Fold the fabric in half.

□ Check that the bottom edges of the pattern on the front and back match. If necessary, pull out some of the first or last picks.

□ Finish off by over-stitching.

□ Trim the fringes. Cut the unwoven centre thread in the middle of the neck slit and darn the ends back.

□ Make eight 30cm (10″) three-strand plaits for side ties using the same yarn.

□ Sew the ties on to the tabard on each side to finish.

Right: colour chart for warp.
Below: the finished tabard.

Add 2 turquoise selvedge threads

	3T
	1B
	2T
	1B
	2T
	1B
	2T
	3B
	3T
	3B
	3T
	2B
	3T
	2B
	1T
	1B
	1T
	1B
	2T
	1B
	1T
	1B	centre thread
	1T
	1B
	2T
	1B
	1T
	1B
	1T
	2B
	3T
	2B	Half pattern for front
	3T
	3B
	3T
	3B
	2T
	1B
	2T
	1B
	2T
	1B
	3T

Add 2 turquoise selvedge threads

Coiled mats and bowls

One method of creating a shape from rope is by coiling and gluing each circuit as it is made. The easiest shape to make this way is a flat circle although it is not difficult to make ovals. With a little more skill you can make bowls, or lidded containers like those shown in the photograph.

The rope

The rope needs to be a fairly thick one so that it will hold the shape—a diameter of 8-10mm ($\frac{1}{3}$"-$\frac{3}{8}$") is suitable for most projects. A three-ply sisal can be used but if you prefer a less hairy texture, you could try hemp. Both these fibres are easy to handle and bond well.

The adhesive

Use a clear, general purpose adhesive (such as UHU) with a nozzle on the end of the tube so it is easy to apply.

Using a former

To help you make the correct shape, it is advisable to use a former or template. For a mat or the lid of a basket, a template can be made from cardboard with the required shape drawn on it—there is no need to cut out the shape. For a bowl you will need another bowl slightly smaller than the desired size so that the rope can be coiled round it.

Round mats

The instructions are for a round mat of 20cm (8") diameter, but you can make the mat any size you wish.

You will need:
2.70m (3yd) 8mm ($\frac{1}{3}$") diameter sisal or hemp rope. The rope should be three-ply or braided.
25cm (10") square cardboard.
Pair of compasses, pencil, general purpose adhesive and glass-headed pins.

☐ Draw a circle of 20cm (8") diameter on the cardboard and clearly mark the centre of the circle.

☐ Pin the end of the rope to the centre of the circle so that the pin can be used as a pivot. Hold the end of the rope in place with your left hand and rotate it from the centre in an anti-clockwise direction. Smear on a little adhesive to hold the centre together and place a couple of pins through the rope into the inner coil to hold it in place.

☐ Before you start the second circuit, smear a line of adhesive round the outside of the coiled section (fig.1). Coil the second circuit, pressing it firmly to the adhesive. Hold with pins through the first circuit (fig.2). This method of rotating the centre makes a firmer coil than if you try to wind the rope round.

☐ Apply more adhesive round the edge

of the second circuit and stick on the third circuit. Continue in this way until the mat is the required size. Cut off the excess rope at an angle and leave until the adhesive is dry. Remove the pins.
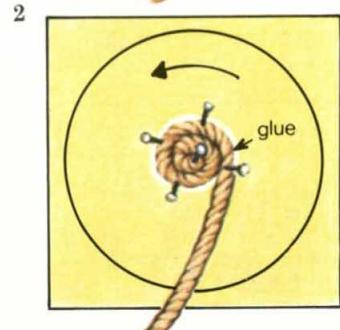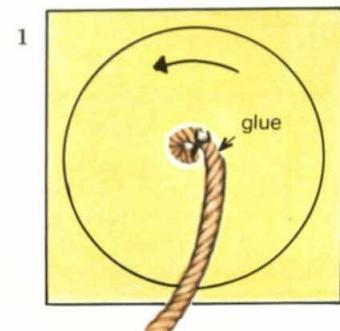
1, 2. *Coiling and pinning the rope.*

Oval mats

Oval mats are made in a similar way to round mats but they are started differently in order to produce an oval shape.

☐ Draw your oval on cardboard (see Design know-how chapter 7, page 196) and mark the centre line in both directions. Measure carefully the distance from the centre of the oval to the side along the shorter line X-A (fig.3). Mark off the same distance along the longer line from the edge of the oval in towards the centre B-Y (see fig.3). Do the same from the opposite end of the line.

☐ Place the end of the rope along the middle section of the longer line (Y-X-Y), so that one edge of the rope

is lying level with the line, and pin. Spread adhesive along this edge and double the rope back, pressing it

firmly together. Pin again (fig.4).

☐ Coil and glue the remaining rope round this section to complete the mat.
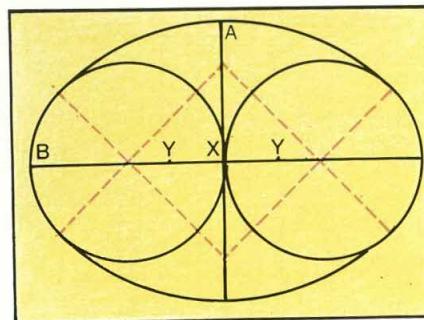
3. *The marked oval template.*
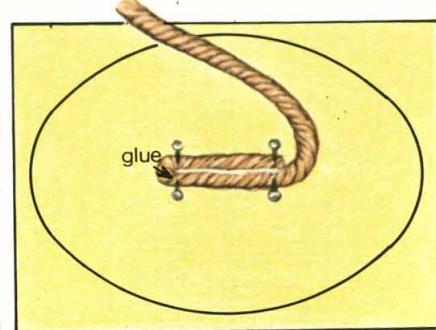
4. *Starting to coil the oval.*

Round containers

The instructions are for a medium-size bowl of 20cm (8") top diameter with lid.
You will need:
9m (10yd) 8mm ($\frac{1}{3}$") diameter sisal or hemp rope (three-ply or braided). Allow about 45cm (18") extra if you wish to make a knob.
Pair of compasses, pencil, general-purpose adhesive and pins.
Former (bowl slightly smaller than required size).

Chunky mats and containers made by the coiled and glued rope technique.

Piece of cardboard larger than base of former.

☐ Draw a circle round base of former on cardboard. Make base of rope container as for round mat but without cutting off the excess rope. Leave the adhesive to dry, then remove the pins.

☐ For the sides of the container, place the former centrally on the rope base and start coiling and gluing round it, forming each circuit above the previous one. Keep turning the former inside the ropework so that you cannot glue the rope to it.

☐ Trim off the excess rope at the top

of container and leave the adhesive to dry.

The lid. This is made in the same way as the round mat but with the addition of a knob in the centre. The knob can be made with a simple overhand knot in the end of the rope before you start coiling the lid or, if you want a more elaborate knob, it can be made separately and stuck on afterwards. In this case you could use either a miniature coil, as shown in the photograph, or a miniature of the container, or you could make a small Turk's head knot (see Ropework chapter 1, page 1018).

More about shadows

□ First of all draw the room, the objects in the room and the light source.
□ Directly below the light source (point A) on the floor mark point X.
□ From point A draw radiating lines through all corners or edges of objects above the floor in the room. These lines represent the angle of the light.
□ From point X draw radiating lines through points directly below the corners and edges to meet the lines from point A—these lines represent the direction of light.
□ Join up the points where the lines cross to mark the outline of each shadow.
□ When a shadow is cast against the floor and the wall, such as the shadow cast by the stool, draw a horizontal line from the point on the floor (point B) to the wall (point C), and a vertical line to point D on the wall to mark the shape of the shadow.

In the previous Design know-how chapter, the method for drawing shadows from a parallel light source is discussed. The shadows cast by a radiant light source such as a candle or light bulb will differ from those cast by parallel light: the size of the cast shadow will vary according to distance of the object casting the shadow from the light source (fig.1).

This is not true of parallel light sources as fig.2 demonstrates.
Fig.3 shows a room which has a radial light source—a light bulb. It is possible to work out the shape and size of the shadows cast by the objects in the room using a method similar to that described in the previous chapter. But here there will be many different directions and angles of light rays.

1. The distance of an object from a radial light source affects the size of the shadow.
2. With parallel light rays, distance from the light source does not affect the size of the shadow. 3. Shadows in a room with a radial light source.

Creative ideas 69

Crepe paper, curled and gently stretched, makes realistic rose petals.

David Levin

Paper rose tree

Crepe paper roses can be the most realistic of all paper flowers. Here they have been combined with alder cones and sequins to make a 'bonsai tree'.

You will need:

Roll of crepe paper.

30 alder cones with a small amount of natural stem retained.

50 leaf-shaped sequins.

About 5.60m (6½yd) of 1mm (gauge 18-19) galvanized wire for stems.

About 5m (5yd) of fine wire for binding.

Gutta-percha, PVA adhesive, florist's scissors, light card.

Make eighteen roses, each with seven to nine petals, by following the instructions in Paper chapter 6, page 170 but substitute the petal shape given in fig.1 and omit the stamens.

Cut the galvanized wire into 28 lengths, each measuring about 20cm (8″). Use eighteen of these for the rose stems.

With a short length of binding wire, fasten a rose to each stem. Bind with gutta-percha.

Thread a piece of binding wire, slightly under 5cm (2″) in length, through each of the sequin leaves. Twist the ends of wire together to fasten. It is not essential to hold the leaves rigid with the wire, as they will give a charming sparkle to the finished tree if they sway a little.

Similarly prepare the cones by twisting a piece of binding wire around each natural stem.

Join a cone with a leaf to the top of each of the remaining ten lengths of stem wire and bind with gutta-percha (fig.2).

Continue down the stem, adding four more leaves and two more cones to each branch; add these no lower than 6cm (2½″) from the top. Complete all ten branches. Collect the 28 branches together like a posy and curve some of them outwards to create a graceful silhouette. When you are satisfied with the shape, bind lower portion of branches together tightly with gutta-percha, leaving 5cm (2″) at bottom. Make the roots by dividing the wires at the bottom into three groups and fan out to support the rose tree. Bind with gutta-percha.

1. *Petal shape*

2. *Binding gutta-percha.*

Diana Atteridge

1933

Four-way Florentine

Four-way Florentine is a fascinating development of the traditional Florentine needlepoint technique described in Needlepoint chapter 2, page 62. It is also known as radial Bargello because the stitches appear to radiate from the centre of the canvas.

This effect is achieved by working in a circular fashion, beginning at the centre of the canvas and moving outwards. The canvas is turned in order to

chosen, draw the first stitches at the centre of the square. These first stitches should correspond to the centre stitches of your chosen pattern. If the diagonal

2. *Centre stitches in the same hole.*

lines cross in a space on the graph paper, the centre stitches will be worked into the same hole (fig.2). If the diagonals cross on a junction of the graph lines, the centre stitches will be
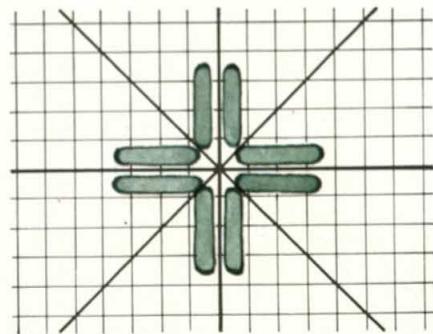
3. *Centre stitches in adjoining holes.*
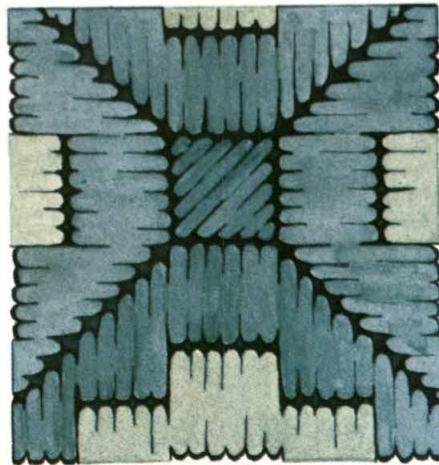
4. *Blocks of stitches at the centre, with short stitches into diagonal.*

worked as shown in fig.3. (This will leave a tiny space at the centre which can be covered by a tent stitch.)
Where the design has a block of stitches in the centre, as shown in the scoop pattern overleaf, the blocks can be arranged in a square around the centre (fig.4). In this case the space left is filled by diagonal stitches.

work each side so that the tops of all the stitches point towards the centre.
Designs. Most traditional Florentine patterns may be used for the radial technique but it is worth plotting the design on graph paper to make sure of its success.
The designs work best if the overall shape is a square, a circle or a hexagon, but the technique can be adapted for rectangles or other shapes by working the radial pattern as a motif and completing the shape with a border or a background colour, as shown in fig.1.
Materials. Use the materials described on the chart in Needlepoint chapter 2, page 62, and calculate the amount of yarn required as explained in the same chapter.

Four-way Florentine patterns are exciting to work because the radial design develops as the rows are stitched from the centre of the canvas.

1. *Although the radial design must be based on a square or circle, it can be worked for other shapes with the pattern as a motif with a background.*

Plotting designs
When you have chosen your pattern and have decided on the gauge of canvas, draw on graph paper an outline of the item you are making so that each line on the paper corresponds to one thread of canvas. If your shape is not a square or circle, draw a square within of the required size. For circles, draw a square with sides equal to the diameter of the circle round the outside of the circle.
☐ Find the centre point of each side of the square and draw lines across the square between the centre points on opposite sides. Draw diagonal lines across the square.
☐ Using coloured pencils to represent the shades of the pattern you have

Total number of stitches from point A to B = 28.

Working from the centre outwards, draw in the stitches of the pattern, repeating the pattern as necessary until you reach the diagonal lines. You will see at this point how some of the stitches may have to be shortened so that they go into the hole crossed by the diagonal (see fig.4).

Turn the paper by 90° and draw the same pattern row with the tops pointing to the centre. Repeat on the remaining two sides of the square and then work outwards to the edges in the same way, drawing in the required number of rows to fill the area. Notice how each stitch lies parallel to the lines on the graph.

When the pattern is drawn in, work out any border design—this can be the same pattern worked round the edge of the shape and separated from the radial pattern by a plain band of colour. If you are working a plain background there is no need to draw in the stitches.

Code the colours of the pencils which you have used to represent the shades of yarn you will be choosing. If you are using mainly shades of one colour with one line of another colour as a contrast in each pattern repeat, try to position the contrast row where it will look most effective as shown on the stool top in the photograph.

Working the pattern

Draw diagonal lines in pencil on the canvas to correspond with those on your graph.

Starting at the centre and working outwards, stitch the rows in the appropriate colours. Turn the canvas 90° as soon as you reach the diagonal lines so that the tops of the following stitches are pointing towards the centre.

Left: stool top worked in four-way scoop pattern. Note how the effect develops as the rows become wider. Design by Mardie Gorman Needlepoint School.

Complete the design as shown on your graph and make up the finished canvas as desired.

Scoop pattern

The pattern used on the stool cover in the photograph is a typically Florentine design (fig.5) and each row is the same pattern (fig.6). The pattern is repeated as necessary to make up the required width of each row.

The design can be worked in any combination of colours you choose: it looks

5. *The basic scoop pattern which is repeated to make up the required width of each row.*

particularly effective with shades of one colour and one shade of another colour because this contrasting colour stands out and shows off the radial character of the technique.

6. *Scoop pattern worked in eight shades of one colour with another colour as contrast.*

Soldering silver rings

Silver for making jewelry can be purchased in different shapes, sizes and thicknesses. The thickness of silver (and other metals) is measured in terms of its 'gauge'. There are three types of gauge system in use at the moment: the Brown and Sharpe—B & S—used in the United States of America, the Standard Wire Gauge—SWG—used in most countries, and the Birmingham Metal Gauge—BMG—which is still used in the United Kingdom.

The BMG system is usually applied to silver and gold but, in order to avoid confusion, specify which gauge you are referring to when ordering. If you know the thickness (usually in millimetres) of the silver, mention it as well when ordering.

Silver wire, either square or round, ranges from about 25mm (1″) thick to .3mm (.012″).

Silver tubing is available in a wide range of square or round seamless sections. The thickness of the silver used for the tubes varies.

Sheet silver ranges between 12mm (½″) thick to .3mm (.012″) and silversmiths will cut pieces to the required dimensions.

Flat strips of patterned silver, called gallery silver, is available in different widths and patterns.

Besides using silver wire to make jewelry, flat strips of patterned silver can be used to make rings. Ring bands can also be made from strips of sheet silver.

There are three basic types of ring which can be made using silver soldering methods. The band ring is simple to make and has no adornments attached. The other two types have a stone or some other small object set in the ring. They differ in the way the stone is set, which can be either a claw or box setting.

This chapter deals with the simple band ring and the claw setting. A later chapter explains the more difficult box setting.

The band ring and a ring with a claw setting. Designed by Gill Dutfield.

Silver band ring

This ring of gallery silver is easily made and is a good introduction to the fine soldering required in silver jewelry work.

You will need:

A length of thin string and tin snips.
Gallery silver—buy enough to go round the finger for which you intend the ring.
Metal file.
Ring stick or triblet (see Metal chapter 4, page 216).
Wood or leather mallet.
Asbestos block and some small pieces of asbestos or charcoal.
Silver solder—medium.
Blowtorch, fine brush and borax flux.
Pickle solution.
Jeweller's rouge.
Soft cloth and household detergent—for finishing and polishing.

☐ With the length of thin string measure round the finger for which the ring is intended. This is the length of gallery you require.

☐ Cut the gallery to the exact length and file the ends so that they are square with the top and bottom edges. This is to ensure a good join.

☐ Place one end of the gallery about half way down the ring stick and hammer gently to bend it round (fig.1).

☐ Do the same with the other end and then work towards the middle of the gallery until you have a circle.

☐ Bring the ends together so that there is no gap between the solid strips in the pattern (fig.2) and place on the asbestos block.

☐ Prop the ring up with small pieces of asbestos or charcoal so that the join is on top. Place a small piece of medium silver solder where each solid strip is to be joined.

☐ Warm the ring gently with the blowtorch and brush borax flux on to the join.

☐ Heat the ring, moving the flame steadily around. When the ring is a dull red the solder will melt and form the join.

Make sure you do not over-heat the ring as the silver is thin and may melt or distort. Remove the flame as soon as you see the solder begin to run.

☐ Drop the ring into the pickle and leave until any excess borax has disappeared, then rinse in cold water.

You will probably find that the ring is not quite circular. If so, put it back on the ring stick as far down as possible without it sticking, and hammer gently turning the ring stick all the time.

David Levin
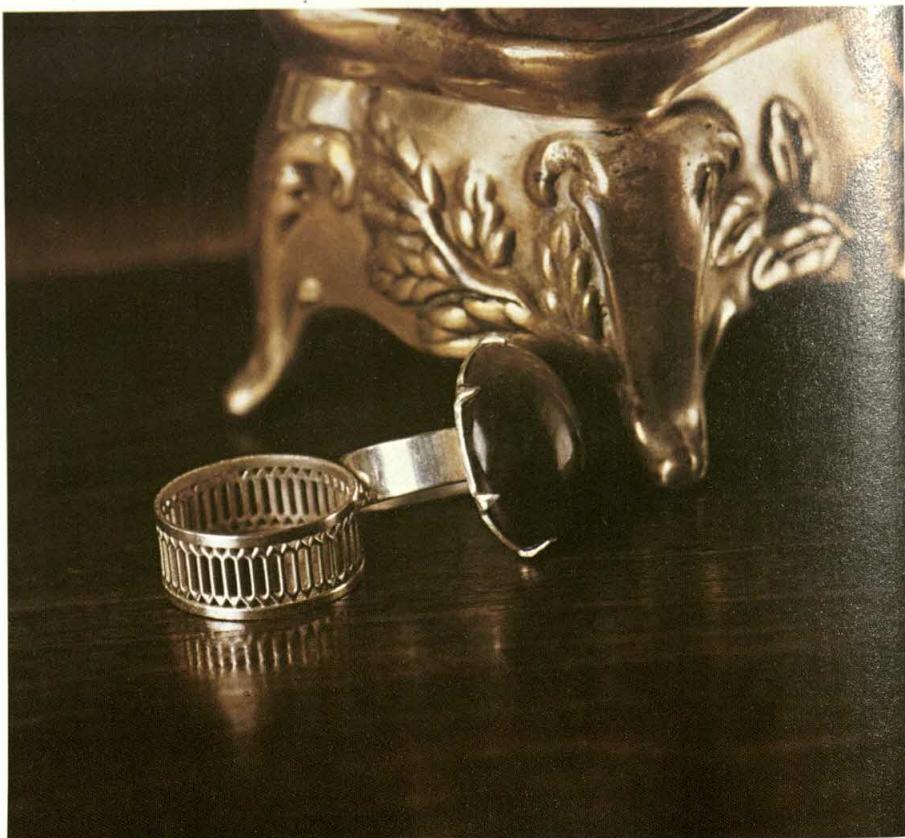
As the ring stick is slightly conical in shape the hammering tends to stretch the ring at the lower end. After going around the ring once, slide it off, reverse it on the ring stick and hammer around again.

Finish. The ring is now ready for polishing. This is done with jeweller's rouge applied with a soft cloth. Wash the ring with a detergent to get rid of any excess polish and polish again using a clean cloth.

Ring with claw setting

The method described here is the easiest way to set a stone on a ring. The ring is made from a 6mm (¼″) wide band of sheet silver long enough to fit round your finger. The support for the stone is 22mm x 28mm (⅞″x 1⅛″) sheet silver.

Choose a cabochon shaped stone that is flat on the bottom. In the illustration an oval stone has been chosen, 20mm x 15mm (¾″x ⅝″). If a larger stone is used, you must make the band around your finger slightly wider to balance the overall proportions.

The pattern for the setting is easily adapted to suit either an oval or round stone. Make sure that the bottom of the stone and the setting are flat so that there are no unsightly gaps underneath the stone when it is set.

You will need:
6mm (¼″) wide strip of sheet silver, .8mm thick (gauge 20-21)—enough to encircle the finger for which you intend the ring.
22mm x 30mm (⅞″x 1⅛″) rectangle of sheet silver, .8mm thick (gauge 20-21) for the setting.
A flat-bottomed, cabochon shaped stone, 20mm x 15mm (¾″x ⅝″).
Pair of dividers, jeweller's piercing saw, and square edged pliers.
Easy and medium silver solder.
Other tools and materials as for the band ring.

☐ Cut the silver to be used for the band. If the edge of the silver sheet is straight, simply measure off the correct length with a pair of dividers and cut with tin snips or a saw.

☐ Hammer each end on the ring stick as for the band ring and make a circle with the ends joining closely so there are no gaps.

☐ Lay the ring on the asbestos mat. It is not necessary to prop it up as only one piece of solder is used which will run down the length of the join.

☐ Warm the silver slightly and brush borax on to the join.

☐ Put a small piece of medium solder on the join (fig.3). Heat the ring gently, moving the flame around all the time to get an even heat. When the solder begins to run, remove the flame.

☐ Allow to cool and place in the pickle. Rinse in clean water and polish.

1. *Bend the gallery by gently hammering it on the ring stick.*

ring stick

gallery

2. *Make sure there are no gaps in the join.*

join

3 small piece of medium silver solder

join →

3. *The molten solder runs down the seam to form the join.*

⟵ 22mm(⅞″) ⟶

.9mm (gauge 20-21) silver

3mm(⅛″)

30mm(1⅛″)

stone

4. *Leave a space around the stone.*

cut out around outside of line

score base of triangle with saw

5. *Draw triangles for claws.*

Paul Williams

Setting. The base and claws of the setting are cut from the rectangle of sheet silver in one piece.

☐ Place the stone in the middle of the silver piece so that there is at least 3mm (⅛″) to spare around it.

☐ Draw lightly around the stone with the point of the pair of dividers or a very sharp pencil. Mark off 3mm (⅛″) around the outside of this line (fig.4).

☐ Divide the oval into six roughly equal segments (fig.5.)

Sandra Lousada

ring upright when soldering.

☐ Borax both the area where the ring is to be joined on the base as well as the section of ring which has been filed flat. Balance the ring in position.

☐ Put a small bit of easy (otherwise called 'soft') silver solder on either side of the join and heat. Move the flame around, making sure that the setting is as hot as the ring.

Easy solder runs more quickly than the medium so work carefully, taking the heat away as soon as the solder begins to run.

☐ Pickle and rinse. File away excess solder and rough edges around base.

Fitting the stone. Place the stone on the setting, making sure that the saw cuts at the bottom of the claws lie just outside the edge of the stone.

☐ File away any of the setting that protrudes beyond the stone. Remove the stone before filing to prevent damaging it. The stone should now fit flush on the setting. File the claws so that they are all the same size with no rough edges.

☐ With square edged pliers, bend the claws gently upwards so that they stand at right angles to the base.

☐ Hold the stone in position and press the claws over the edge of the stone until it is held firmly. Press down opposite claws one at a time. This can be done with the flat edge of a pencil.

Make sure there are no gaps between the claws and the stone, then polish with jeweller's rouge.

Note: it is best to polish each piece before soldering as this makes the final polish much easier.

Diagram lists types of silver shown opposite. **1.** *Gallery silver.* **2.** *Patterned bracelet silver.* **3.** *Thick square wire.* **4.** *Square tubing.* **5.** *Round tubing.* **6.** *Thick round wire.* **7.** *Round wire.* **8.** *Sheet silver.*

☐ Draw the triangles for the claws.

☐ Using the jeweller's piercing saw (Metal chapter 12, page 837) cut out the setting. Cut on the outside of the line as any excess can be filed off later.

☐ With the saw, carefully cut a shallow crease across the bottom of each claw at the point where it will bend up to hold the stone (see fig.5). This helps to make the angle of the fold a right angle, but do not cut too deeply as it will weaken the claw.

☐ Place the piece, saw cuts face down, on the asbestos pad. Measure carefully where the ring is to join the setting and mark with a pencil.

☐ Make sure that the ring is round by hammering it on the ring stick. Then file the outside of the seam flat.

This ensures that there is enough silver in contact with the base of the claw setting to make a good join. The filed area need not be more than 3mm ($\frac{1}{8}$") wide and makes it possible to stand the
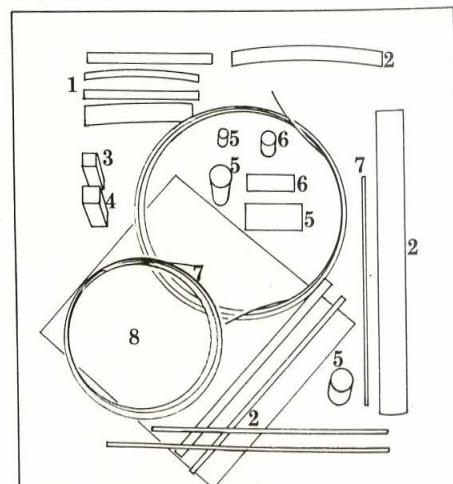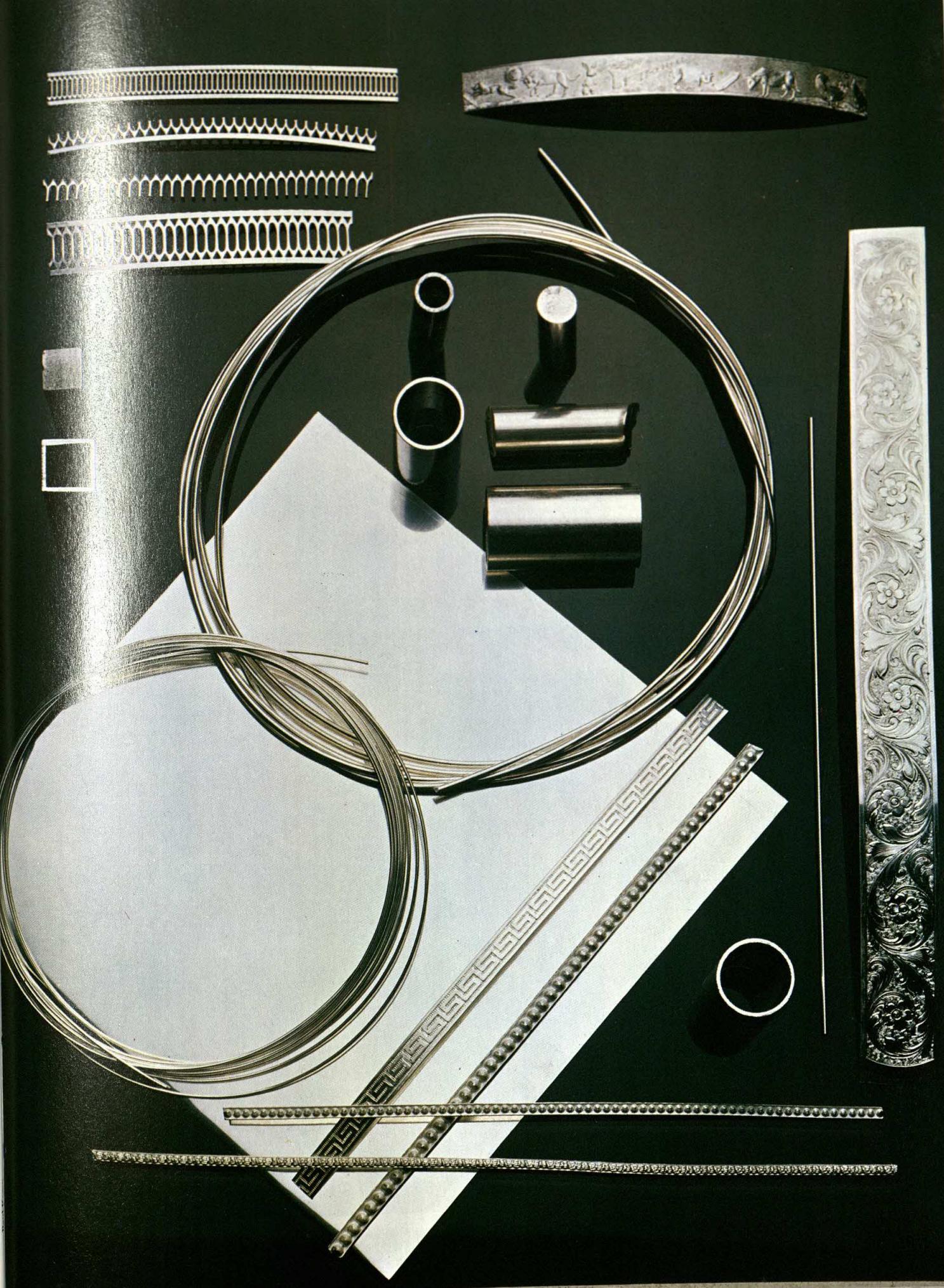
More ideas for decorative tiles

Basic tile making has already been discussed in Clay chapter 40, page 1826, and so have various decorating possibilities. Here are four more interesting ideas, all of which can be realized by adapting techniques already described in earlier chapters.

Tile with thrown elements

The single panel (fig.1) was made all in one piece and measures 30cm x 20cm
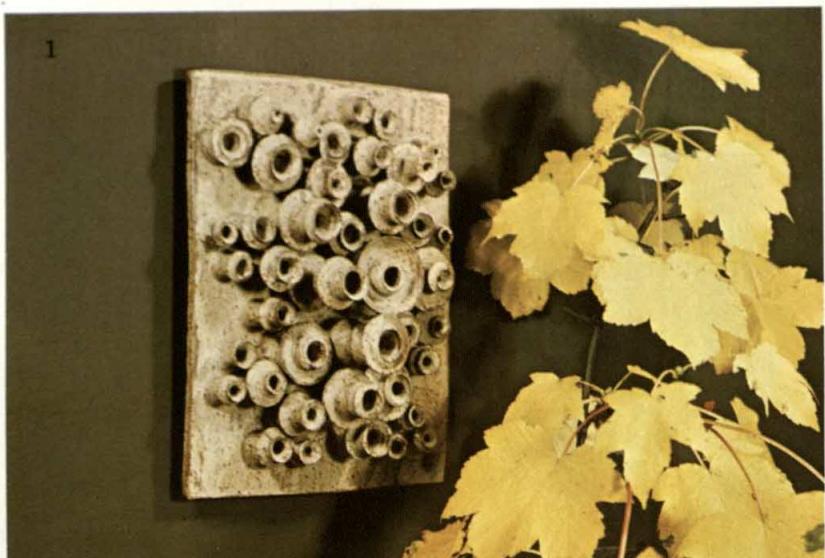
1. *The round protrusions on this tile were thrown separately, then attached. All tiles shown are by Tony Jolly.*

2, 3. *Delightful jigsaw puzzle cut out of one tile at the leather-hard stage. It was biscuit-fired, assembled, then glazed in pieces.*

4. *The simplicity and fine proportions of this mounted tile give the visual satisfaction good sculpture evokes.*

5. *This series of tiles was made by pressing designs into the tiles and packing the impressions with black clay, then adding blue-green glaze.*

Tony Jolly
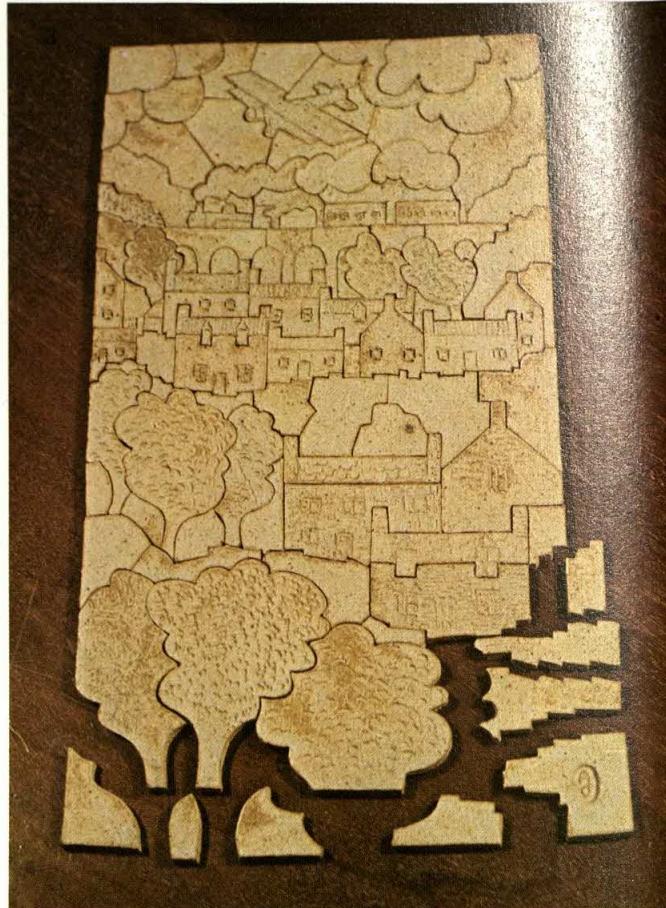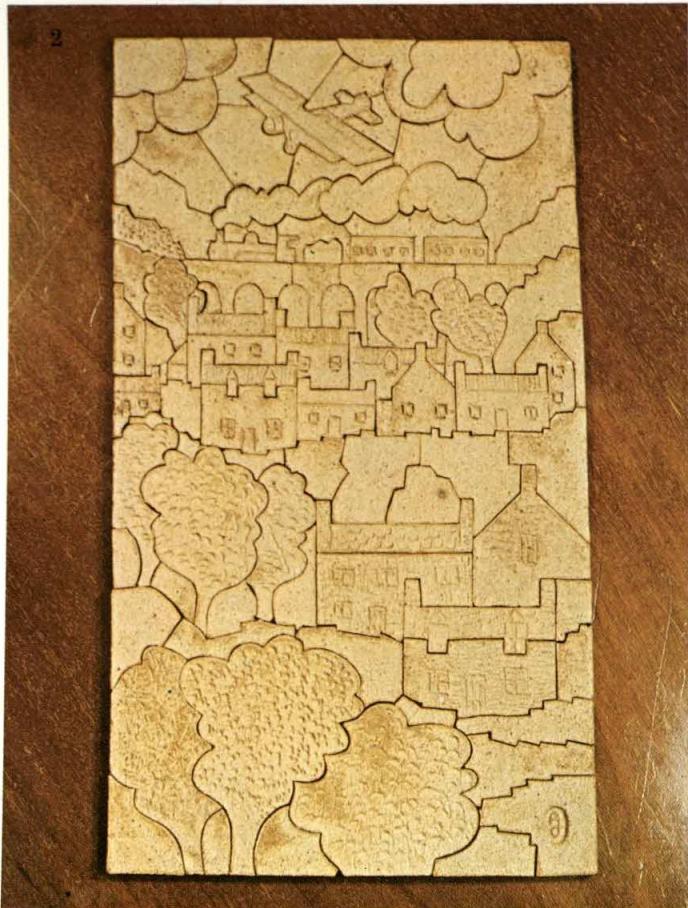
(12″ x 8″). The decoration consists of various wheel-thrown elements which were attached to the panel at the leather-hard stage. The surfaces to be joined were scratched and coated with slip and the wheel-thrown shapes pressed firmly into place in the usual way.

It is important to ensure that the thrown shapes and the panel are at exactly the same stage of dryness when they are joined. Any discrepancy can result in disastrous distortion.

The finished panel should be allowed to dry out on a flat surface under a polythene covering. This covering can be removed from time to time to speed up the drying process.

Jigsaw tile

Designs for interlocking tiles can be very simple, or can contain a range of dissimilar shapes, like the jigsaw puzzle shown here (figs.2 and 3). This puzzle, measuring 34cm x 20cm (13½″x 8″), contains about 100 pieces and is finished in brown wood ash glaze.

The design was lightly drawn with a pencil on to a single piece of leather-hard clay about 6mm (¼″) thick. Selected areas were press-patterned (see Clay chapter 40, page 1826). The cutting was then done with a very sharp knife and all the pieces were left in position until the last cut had been made. The pieces were then removed one at a time, trimmed to ensure a close and neat fit, and the whole re-assembled.

The jigsaw tile was allowed to dry and was biscuit fired as one piece but was separated into its component parts for glazing and for the final firing. The raw glaze was wiped away from the joint faces before firing to ensure that the joints still fitted perfectly when the puzzle was finished.

Free-standing tile

The free-standing tile mounted on a wooden base (fig.4) measures 30cm x 20cm (12″x 8″), and tapers slightly from base to top.

The shapes were cut from a single sheet of clay, about 6mm (¼″) thick, with a commercial tile cutter, while the clay was still fairly soft. At the leather-hard stage, the edges were finished off with modelling tools.

When the piece had been biscuit fired, a sponge was used to stipple the surface with a mixture of oxides and glazes to produce a rusted finish.

Clay inlay tiles

Clay inlay takes several forms. The simplest involves placing shapes of clay of contrasting colour on the surface of the tile base when rolling out is almost complete. These shapes should be as thin as possible—preferably no more than 2mm (1/16″) thick. The pressure of the final rolling spreads the inlay slightly and leaves it flush with the surface. Alternatively, coloured clay slips can be poured into depressions which have been pressed or cut into the clay.

In this case (fig.5), the press pattern was made by stamping with a wood mounted lino cut. Black clay was packed into the impressions, left proud of the surface and scraped flat with a modelling tool when leather hard.

Finally, a transparent blue-green glaze was used.

These illustrations, and those in the previous chapter are intended to show just a few of the possibilities in tile making. With experimentation and adaptation you should be able to make a great many more imaginative and artistic designs.

4

Building a model theatre

A model theatre can give children and adults hours of pleasure, while both making it and playing with it. You can borrow a book of simple plays from the library, create the characters and scenery on thin card (as described in the next chapter) and act out the plays.

When not in use, a model theatre looks very decorative when set with scenery. This one is based on a typical 18th-century theatre, when the people watching from the boxes were sitting directly above the stage. (The old theatres were lit by candles and therefore burned down rather frequently, so candles are definitely not recommended for this miniature cardboard version!)

Use strong, thick cardboard to construct the theatre. This should be good quality white cardboard, if you wish to paint the theatre or decorate it with felt-tipped pens. If you intend to decorate it like the one in the picture, with a collage cut from old magazines, you can use a less finely finished cardboard.

The cardboard should be cut with a sharp craft knife against a metal ruler, and glued with woodworking adhesive,

This home-made theatre is very similar to the period toy theatres popular in Victorian times, which were called 'penny plain, two pence coloured'.

white PVA or clear adhesive such as Evo-stik.

A floorboard effect can be obtained by covering the stage area with brown paper and drawing in the boards with a black felt-tipped pen before final assembly. Note how the floorboards on the stage, as shown in fig.1, are drawn with exaggerated perspective.

Cardboard curtains can be covered in fabric and may also be trimmed with braid for a rich effect. Stick fabric to the cardboard curtain pieces with fabric adhesive such as Copydex.

The following instructions are for a theatre 42.5cm (17") wide, 40cm (16") high and 37.5cm (15") deep.

You will need:

Three sheets of cardboard with a total area of at least 160cm x 132.5cm (64"x 53").

Graph paper of the same size for drawing up each piece from the diagrams.

A sharp cutting tool, such as a craft

This side view shows the wings from which the puppets are operated.

Melvin Grey

knife or scalpel.
Metal ruler.
Pencil, black felt-tipped pen.
Scissors.
Brown paper 37.5cm x 42.5cm (15"x 17") for the stage floor.
Colour magazines, or poster paints, or coloured felt-tipped pens.
Adhesive, such as PVA, Evo-stik Clear, or woodworking adhesive such as Evo-stik.

First, you must enlarge the pattern pieces on the graph overleaf.

☐ Draw the 13 pieces which make up the toy theatre to scale on the graph paper, enlarging each square to 2.5cm x 2.5cm (1"x 1") (see Design know-how chapter 4, page 112), and then copy the design square by square on to the cardboard.

☐ Cut out each piece from the cardboard (but note that side curtains and box characters are optional). Score and bend on dotted lines; cut on solid lines.

☐ Following fig.1, assemble the pieces as shown.

☐ The front piece is the front of the theatre. Cut away the top two stage boxes and make three slots below each one. Cut, score and bend the two side stage doors so that they open.

☐ Cut slots I to VI in the arch piece. Score and bend the arch piece along dotted lines.

☐ Score and bend the sides of the back piece.

☐ Score and bend the sides of the stage floor piece to form a box base. (There is no need to stick the base because the front and back pieces will hold it in place when they are stuck on.)

☐ With adhesive stick the front piece to the assembled stage base at points A, B and C.

☐ When the glue is dry, fix the arch piece to the front piece by pushing the tabs I to VI on the front piece through the corresponding slots cut in the arch piece. Bend back the tabs and stick them in place. Make the arch still firmer by sticking it to the stage floor at tabs E and F.

☐ Glue the back piece to the stage at points G, H and I.

Front piece

Arch piece

Back piece

Stage floor piece

1

Trevor Lawrence

2

□ Bend the two box fronts so that they form a bow shape and slot them in position (fig.2). Cut out figures to go in the boxes, mount them on cardboard —it's fun to cut out figures or faces from old family photographs—then slot them in position. However, these figures are optional.

□ Bend the stay pieces along dotted lines and apply dabs of glue to tabs J, K, L and M. Stick each stay piece to the corresponding points on the arch piece and back piece (see fig.3). These slotted stays hold the curtains and backdrop (which is made in the same way as the main curtain).

□ Slot the top curtain piece through the stay pieces behind the arch piece, then slot the main curtain piece behind this so that it is supported on each side by the stay pieces. The two optional side curtains can be slotted behind these in the same way.

□ Finally, decorate your assembled theatre with cut-outs from magazines (as in the photograph) or with poster paints or coloured felt-tipped pens.

Your theatre is now ready for use. All you need are some card puppets on rods to slide in and out of the wings, and some scenery. Instructions for making these are given in the next Paper chapter.

2. Slot each box front and figure into position. 3. Assemble the theatre, folding the stay pieces as shown.

Graph pattern: each piece must be enlarged separately on graph paper before it is outlined on the cardboard.

3

Completed model

Stay pieces

Front piece

Cut

Cut away

Slots

Score

Door

Cut

C

Stage floor piece

I

Main curtain piece

Optional side curtain

Glue F here

C
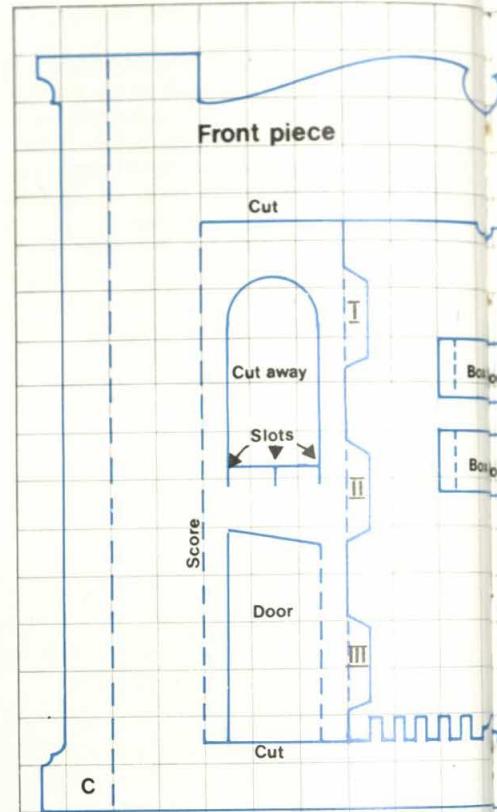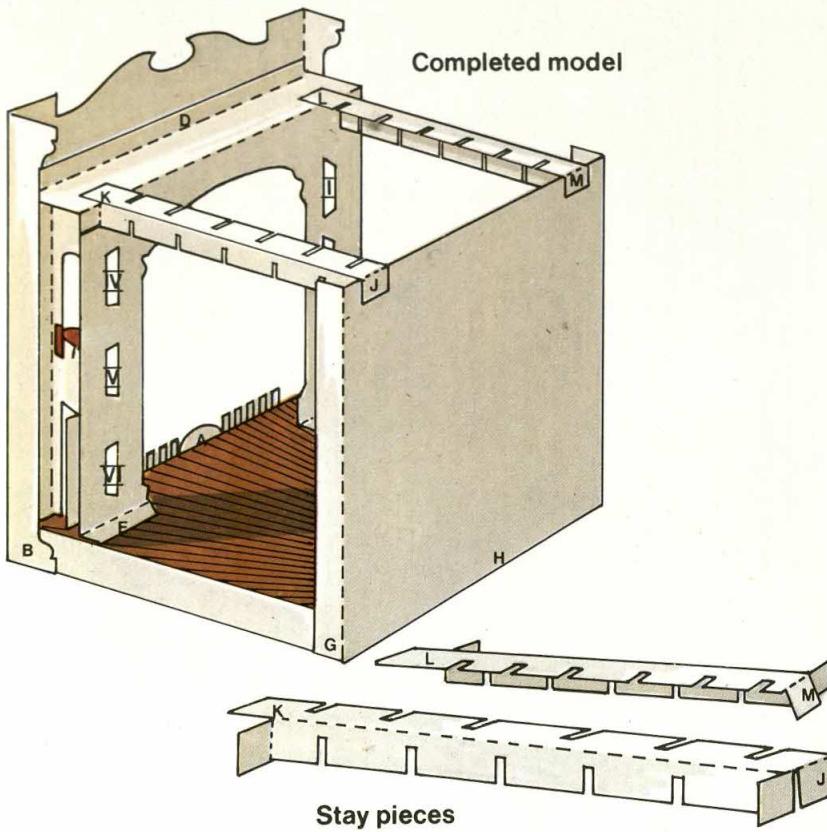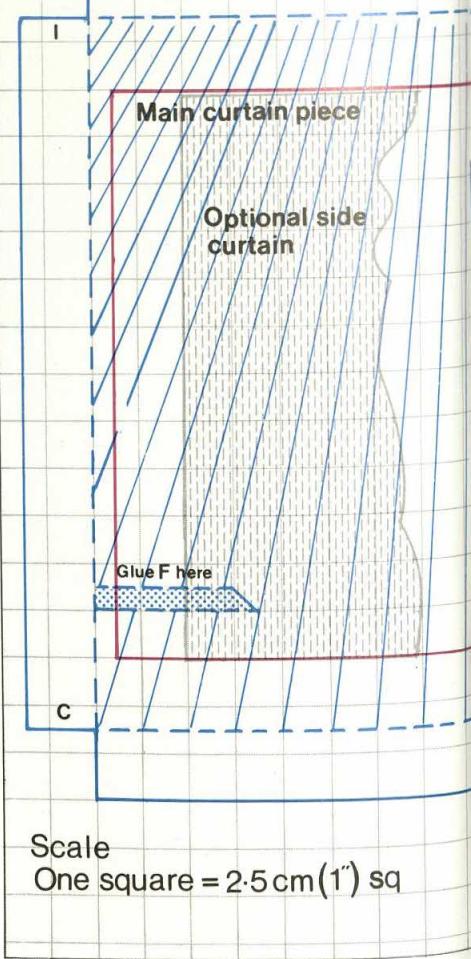
Scale
One square = 2·5 cm (1″) sq

Cut

IV

Cut away

Slots

V

Door

VI

Cut

Score

B

D

Bend up

Arch piece

L

Bend forward   K

I

Cut slots

II

III

F

IV

Cut slots

V

VI

E

Stay pieces

Cut L

L

M

Cut M

Box character
Cut 2 (optional)

Slot

Cut K

K

Cut J

J

Back piece

M

J

G

Glue E here

B

I

Top curtain piece

H

G

Trevor Lawrence
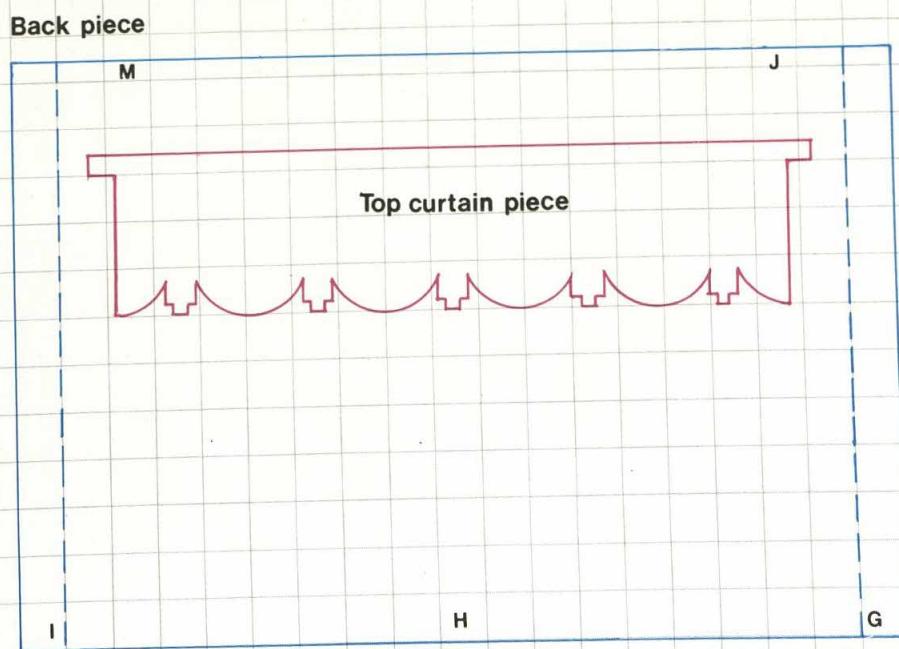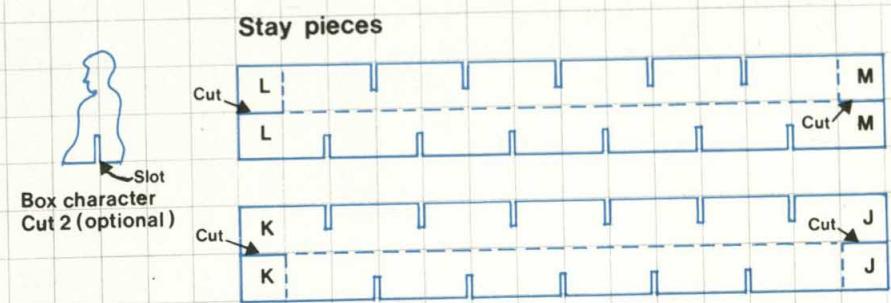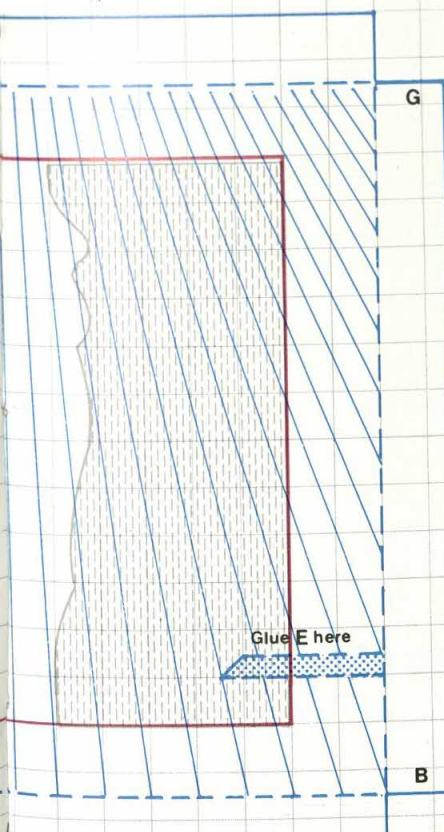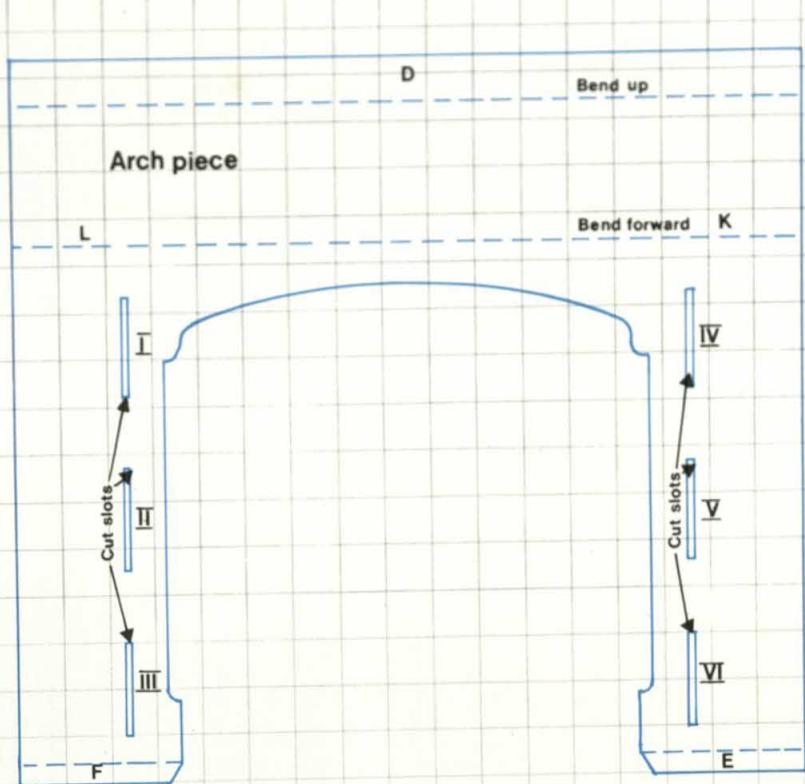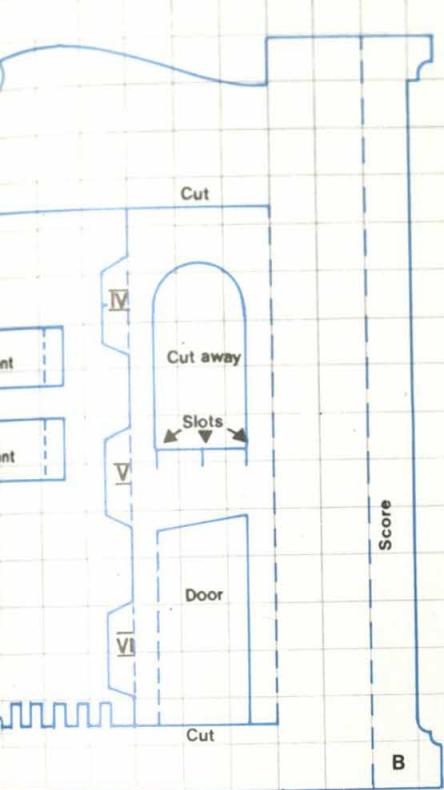
'Painting' with sand

For many centuries the practice of executing pictures in sand has flourished in various parts of the world. It is generally held that sand 'painting' originated in Japan where it was known as *Bon Kei*. Buddhist monks would sprinkle dry coloured sand on to the surface of plain lacquered trays to form seascapes and landscapes. These trays were then used in religious ceremonies. In the United States the Navajo Indians

Jerry Tubby

1948

are noted for sand painting ceremonies. These used to form an essential part of their social and religious culture, but this is no longer so and many designs have fallen into disuse and can only be seen in museums.

Visitors to Belgium may be familiar

Below: this sand painting is a fine example of the art of marmortinto. *It was created by George Zobel.*

Above: close-up of picture opposite shows the fine detail possible in sand.

with the sand 'carpets' executed by local artists on the floors of hotels and cafés in the village of Hekelgem.

These different types of sand pictures are displayed unfixed and eventually destroyed.

In the 17th and 18th centuries the royal courts of Europe employed 'table deckers' to decorate the tables for banquets with designs carried out in coloured sand or sugar. These ornate creations were also destined for destruction—swept away with the rest of the debris of the feast.

It was King George III of England who reputedly suggested making sand pictures permanent. This prompted artists to seek suitable recipes for fixing the sand. One of the most famous of these painters in sand was Benjamin Zobel whose work is shown here. Unfortunately, as none of these artists felt disposed to disclose the secret methods they used to secure the sand, sand painting, or *marmortinto* as it was then known, became a lost art.

During the Victorian era it became popular for English families to take a holiday on the Isle of Wight. This island is famed for its coloured sand and local craftsmen began producing postcard-sized sand pictures of the scenery which they sold as souvenirs to the visitors.

The sand

You do not have to live in an area which abounds in coloured sand to be able to sand paint, as sand is available by mail order.

Alternatively, you can dye white silica sand.

Dyeing sand. Thin down a glass painting medium, such as Winsor and Newton's Vitrina, with surgical spirit until the colour is satisfactory.

Put some sand in a bowl and gradually pour the colour into it, stirring all the time. If the colour is too dark pour in more surgical spirit, add some more sand and continue stirring. If the colour is too light, mix more glass painting medium into surgical spirit and then pour it into sand.

Spread out the sand on several thicknesses of newspaper and leave to dry out naturally. Stir the sand from time to time to make sure that it dries thoroughly.

To darken any naturally coloured sand mix it dry with enough powdered charcoal to give the desired colour.

Unfixed pictures

It is a good idea to start by experimenting with an unfixed monotone design to get the 'feel' of the medium. A novel method of producing unfixed pictures in sand is based on the Japanese art of *Bon Kei*.

Experimenting. Lay a piece of dark-coloured showcard on a level surface and, using a plastic or nylon tea strainer, sprinkle a thin layer of light-coloured sand (or salt) all over the surface of the card.

Take a firm feather and, holding it by the quill end 'doodle' over the surface of the sand (fig.1). By using the

1. *'Doodle' over surface of sand.*

tip, or pinion, and both edges of the feather you will be able to produce some interesting effects—repeat patterns, wave formations and silhouettes.

Having experimented with different effects for some time, make a picture—perhaps a seascape.

Seascape. Sprinkle a layer of sand across the bottom half of the card and then sprinkle two or three thin patches in the 'sky'.

Draw the point of the feather across the top edge of the 'sea' to form the horizon line. Stroke the edge of the feather from the horizon line towards the bottom of the picture (fig.2) in a

2. *Make gradually increasing 'waves'.*

series of gradually increasing 'waves'. Take a drinking straw and, holding the end close to each patch of sand in the sky in turn, blow gently to create cloud effects.

Add further details with a funnel made from a half-circle of good quality paper (vellum or linen is best) 11.5cm (4½″) in

diameter. Use the funnel rather like an icing forcing bag but hold it with the thumb and forefinger (fig.3) to manipu-

11·5cm (4½″)

3. *Manipulate opening with thumb and forefinger to control flow of sand.*

late the opening and control the flow of sand.

In the beginning you may find it helpful to use simple paper stencils to produce effects such as moon and stars. With a little practice, however, you will find that you can draw with the funnel quite well and can dispense with stencils.

Note: commercially-run bird sanctuaries will often sell feathers.

Fixed pictures

This method is based on that used by Isle of Wight craftsmen.

When starting to use the fixed method, make your designs simple until you are used to working in this way.

You will need:

Liquid glue, such as Gloy Gum.

A selection of paintbrushes.

Several egg boxes (half-dozen size).

Dry, sifted sand in a range of colours.

Plain white showcard, a piece of hardboard or plywood.

Pencil or charcoal.

Tea strainer and funnel as before.

Making the picture. Keeping the colours separate, arrange the sand in the egg box 'palette'.

Place the card on a level surface and sketch in the outlines of your picture with the pencil.

It is possible that you will have to thin the glue with water so that it can be spread thinly and evenly with a brush. To do this, dip your brush first into water and then into the glue as you work. If the glue is too thick the sand will sit on top of it rather than

Still life sand painting by Brian Pike is a modern example of an ancient art.

sticking to the card. In addition, after a time, the glue will crack and come away from the card. Do not, of course, over-thin the glue or the sand will not stick to the card. (Gloy Gum should not need to be thinned.)

With a brush apply glue to a small area of the picture.

Now put on the sand. Use the tea strainer method to 'lay in' the larger areas of the picture and the paper funnel method to draw lines and details. In both cases it is important to make sure that the implements do not come into contact with the glued surface of the picture.

When each glued area of the picture is completed, shake off the excess sand

before gluing the next section. Try to avoid sand adhering to your brush.

Framing. When thoroughly dry sand pictures can be framed, either glazed or unglazed. A large picture could be used to make an unusual top for a coffee table, if covered with a sheet of glass.

Fixed picture made by the method described here. The sky has been left unsanded as have 'highlights' on rocks, waves and lighthouse. Brian Pike.
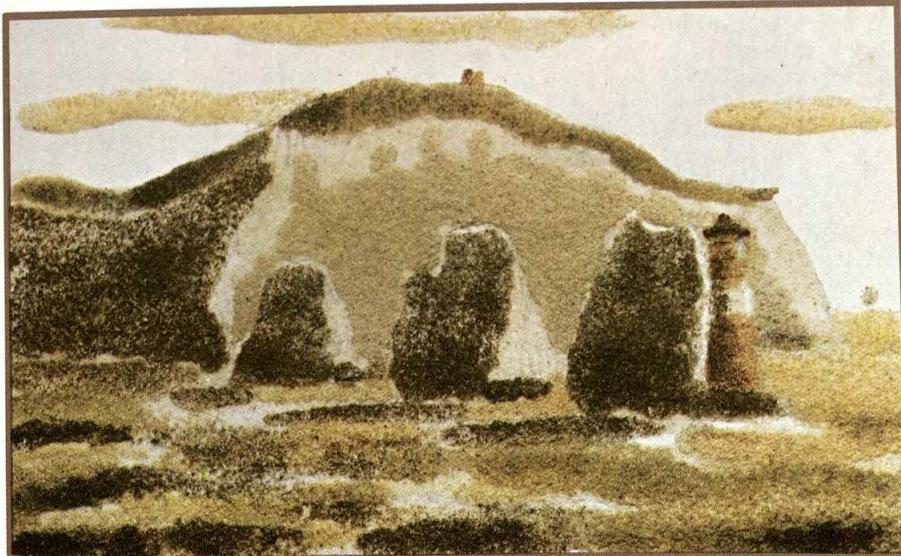
Rush plaiting and seating

Rush seating is probably the ultimate in rush work, but plenty of practice is needed on weaving and plaiting rushes before starting to do rush seating. Plaiting mats will give the necessary experience in handling rush before beginning rush seating.

Rush mats have a considerable history. In Tudor times rushes were strewn on the floor for people to walk on, but in this loose form they soon became broken and untidy. So gradually the women of the house learnt to plait the rushes into mats which were longer lasting and tidier. It was not until later that mats found their way to the dinner table.

Plaited rush floor mats are still used and are suitable for most homes, especially country cottages. Plaiting rush mats is not difficult once the handling of the rushes has been mastered and many lovely patterns can be made.

Choose thick rushes for floor matting and fine rushes for table mats. Designs can then be adapted to make decorative coiled designs and similar techniques can be used for bowls and work baskets. Start with some plaiting (even if you do not use it) to get the feel of stroking and twisting the rushes so that they become firm and solid. Prepare the rushes as described in Basketry chapter 12, page 1415.

Rush plaiting

☐ Select 3 rushes and tie them together somewhere in the middle, but not in half or the ends will all run out at the same time and make the joining of new rushes difficult.

Fine strong string or linen thread is used to tie the rushes. Always leave the ends of the string long enough to allow for sewing later on.

☐ Loop the rushes, at the point where they are tied together, round a hook or a nail in the wall. Bring the six ends together and divide them into three pairs so that each pair has a thick and a thin end. This will keep the thickness of the plait constant.

Although the plaiting looks just the same as braided hair, in rush work only the right hand is used for actually plaiting; the left hand merely holds the material.

☐ Hold two of the pairs in the left hand. Using the right hand twist the other pair, two or three times to the right, stroking and pulling the rushes at the same time, so that the two rushes look like one and are quite firm.

☐ Place the right-hand pair over the top of the centre pair and hold under the left thumb. Pass the left-hand pair over the top of the twisted rushes. The original right-hand pair is now the left-hand pair, the left-hand pair is in the centre and the centre pair is now the right-hand pair.

This pair is now ready to be worked by the right hand. Continue twisting the right-hand rushes, as before, with the right hand and then placing the rushes in the left hand by taking them over the centre pair. The left-hand pair is then placed over it so that the centre pair is on the right.

Keep the width of the plait even. A marker can be used by slipping a ring of the required size over the plait. If the plait gets thicker the ring will not slip down along the plait and if the plait gets thinner the ring will become too loose.

To join in a new rush, wait until the end to be replaced is about 10cm (4″) long and in the centre of the plait. Lay the new rush against the old so that the top end of the new rush protrudes 7cm (3″). When it is their turn twist all three together working with the old and the new. Continue plaiting until the short end of the old rush is lost in the plait.

Generally, a thick end should be replaced by a thick end and a thin end by a thin end in order to keep the plait even. At all times aim to keep the combined thickness of the six rushes even.

☐ After plaiting a length cut off all the ends of the new rushes as close as possible to the plait as well as any old ends which may be showing. Short lengths of plaiting are suitable for table mats but floor mats will require a much longer plait.

Round mats

For a small round table mat, about 20cm (8″) in diameter, plait for about 4.6m (5yd). Make the plait 13mm (½″) thick. Do not finish off the ends.

Press the plait flat by either passing it through a wringer or by pressing (Basketry chapter 12, page 1417).

Stitching. Thread the string at the beginning of the plait on to a needle. Make a tight coil with the flat part of the plait forming the thickness of the mat. Stitch in position (fig.1).

Do not worry if the plait is not long

1. *Stitching the plait to form a mat.*

enough for your requirements; re-wet the ends of the plait and continue with the rope for as long as you wish. Many rushworkers make the mats by plaiting a length and then stitching the plaiting before continuing.

To join in a new thread, tie the old and the new threads together with a reef knot and continue to sew, pulling the knot through the rushes until the old thread is used.

To finish off a plaited mat, cut off the underneath rush from each pair and weave the remaining three rushes into the plait of the previous row. Stitch into place.

Oval mats

To make an oval mat about 25cm x 35cm (10″x 14″) plait for 11m (12yd). Begin the coil by doubling back the end and stitching into position. The piece doubled back should equal the difference between the width and the length required—in this case 10cm (4″). Continue to stitch the plait round this elongated coil which will form an oval.

Coils

The mats can be made more interesting by adding a series of coils.

For coils make a length of plait and mark the centre. Coil and stitch from one end towards the centre. Stitch in the usual way. Bind the other end with the thread and then stitch towards the centre so that the two coils are opposite to each other (fig.2).

It is usual to have an odd number of

2. *Double coil used for decorating.*

coils so that the end of the last one is continued to form the plaiting round the outside. In this way a sudden start is avoided.

Table mats made from lengths of plaited rush which have been coiled and stitched. Designed by Barbara Maynard.
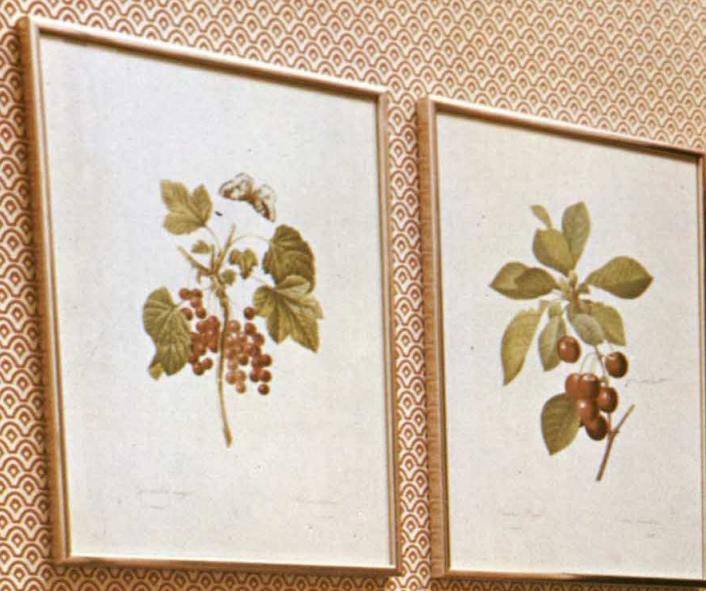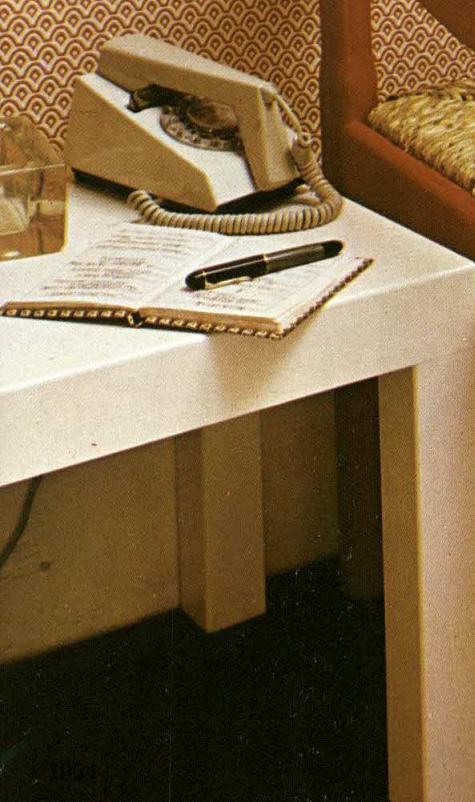
Re-seating a chair

Antique chairs are very often sold cheaply because the rush seats need replacing—if you can repair them yourself it is well worth the effort. An average chair takes about three-quarters of a bolt to re-seat. No special equipment is necessary and, apart from rushes, the only other material required is string.

Strip off all the old rushes and make sure that the joints of the wood are secure.

A **square chair or stool** is started by tying two rushes—one thick end and one thin end—to a corner on the left-side rail, with string (fig.3). Make sure

Twist the rushes to the left this time, stroke pull and twist, and then take them over the first twist, over and down the left-side rail. Pass under the left-side rail and all the way to the right-side rail untwisted.

Turn the chair round so that you can now repeat the looping process in this corner. Work each corner in this way (fig.4). The first twist in each corner is always to the right and the second one to the left. You may prefer to think of it as always twisting away from the corners. Try to use your right hand to do the right twist and your left hand to do the left twist. (So for once it does not matter whether you are

Continue to rush the seat but do not attempt to do the whole chair in one session. The rushes should be allowed to dry and can be pushed up closer when starting to rush again. If you do it all at once the finished seat will be quite loose. Pad every dozen or so rounds and try to keep the rushes very tight. When the centre is reached tie the last rush on to the one opposite, underneath the chair.

Oblong shapes are started in the same way as a square chair. Work until the short side is filled up. Then continue to fill the long sides with a figure of eight pattern between the two long sides (fig.5).

3. *Starting the rush seating.*

that they are tied very securely.

Take the two rushes in the right hand and twist them to the right, stroking and pulling them quite firmly at the same time so that the two rushes look like one. Take the twisted rushes over and down the front rail at the corner (see fig.3). Now the rushes pass under the front rail and up through the chair untwisted.
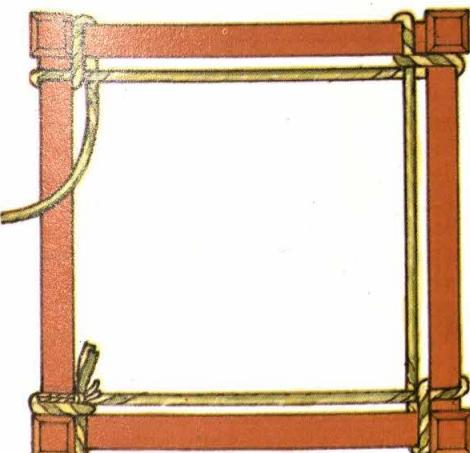
4. *Each corner is worked in turn.*

Left: rush seating is suitable for a variety of chairs—this chair is wider at the front than the back.

left- or right-handed.)

Keep the diagonal lines of the pattern at 45° from each corner and make sure each twisted pair is parallel to the side rails.

Join in a new rush by tying the old end and the new end together with a reef knot. Try to keep all the knots on the untwisted section between the rails where they will be covered and so hidden. At first this is easy but becomes increasingly difficult as the work progresses. At the end the knots will show underneath the chair so keep them as neat as possible and turn the ends into the work.

Packing. When you have made about twelve rounds it is time to start 'packing' the chair. This is to make the rush work quite firm and even, and prevents the rails cutting the rushes.

Turn the chair upside-down. Use any leftover oddments of dry rush for padding; the ends that have been trimmed, weak pieces, spotted rushes etc are all used up at this point. Cut them into short lengths and stuff them into the eight pockets (two at each corner) formed by the pattern of the work. Push them right into the corners and make the padding quite firm and tight. Use a knife handle or something similar to help push the packing into the work.

5. *Completing an oblong shape.*

For a chair that has the front rail longer than the back rail (that is wider in the front) start as before (round the two front corners only), then tie the ends firmly against the right-hand rail. Now start all over again at the left side and weave only round the front two corners and tie off. Continue in this way until the area still to be rushed is exactly square (fig.6). Pad the corners if necessary. Then continue as before and work over the tie in pieces.
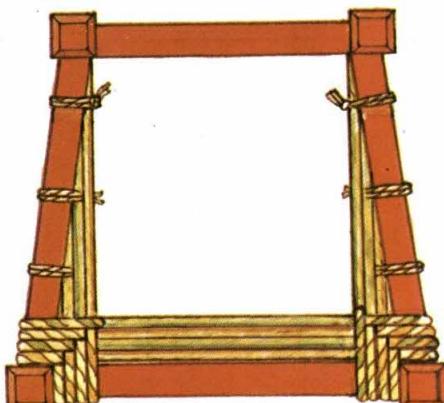
6. *Rushes tied with string and worked round frame to form a square.*

Remodelling an old fur coat

This chapter describes the basic principles of remodelling a fur coat and shows how to re-use worn fur garments to make a fur lining or detachable collar and cuffs. The general techniques for making up fur pelts given in Fur chapter 2, page 1914 are also applied here.

If you have an outmoded fur coat which shows signs of wear, but is still in good general condition, you may wish to remodel it in a more up-to-date style. Bear in mind, however, that only a garment smaller than the original can be made from it.

This is bound to be a time-consuming job so, before you begin any unpicking, check that the fur is in sufficiently good condition to justify the work you will put into it. To do this, open the lining along the hemline, pinch the skin side to test for suppleness and pliability and bend the fur hairs to be sure they are not too dry or brittle.

Unpicking an old coat

The first step in restyling a fur garment is to remove the lining and any fastenings and open out the fur shell. Remove any backing fabric, interfacing and pockets. Unpick all the construction seams including darts, and take care not to cut the fur. While you are unpicking you may find some fine sawdust-like material in the folds of the fur; this is commonly used in the cleaning process of fur, and will come away with a gentle shake.

If the original garment had inset pockets, check around the openings for worn areas. If there is no sign of wear, join up the slits by overcasting the edges together and reinforce with tape. This is the only sewing that need be done at this stage. Any worn patches of fur may have to be repaired later but, as they may not be used in the new garment, it is not necessary to repair any worn areas until after the new garment has been cut out.

Nailing

The nailing out of used fur is particularly important in order to eliminate any wrinkles and irregularities and get the fur back into shape. As you will be dealing with fur pelts already joined into large sections, you will need a large area of wood for nailing—perhaps an attic floor, the clean floor of a garden shed or the underside of an old table—otherwise you may have to deal with only one section at a time. You will also need fine wire nails or drawing pins.

Using a brush or a sponge, wet the flesh side of the skin just sufficiently to give it stretch and pliability, and without getting the fur wet. Place the pelts, fur side down, on the board and smooth them with the palm of the hand to push any fullness to the outer edges. Beginning at the centre of the top of each section, then the centre of the bottom edge, then the centres of the sides, fasten the pelts to the board with the nails or drawing pins. It is important always to deal with the opposite sides first, and then to nail the remaining

Rejuvenate this old rabbit coat by eliminating worn edges and remodelling it.

sections every few inches.

If the skin is very delicate and tends to flake into layers or even to split, place 13mm ($\frac{1}{2}$") wide strips of cardboard over the edges of the skins and push the pins through both the cardboard and the skin. If the pelts are very wrinkled and irregular, more nails will be required. Weights, such as an iron or several books, may be placed on top to help flatten the skin.

Allow the fur to dry thoroughly. The length of time needed will depend on the thickness of the skin, the amount of water used and the humidity of the room, but it will usually take at least 24 hours. When dry, remove the pins and the fur is ready for cutting.

Preparing the pattern

Choose your pattern carefully, bearing in mind the size and shape of the available fur. Prepare the pattern pieces (see the previous fur chapter) and adapt the collar pattern if necessary.

Adapting the collar. To cut a shaped collar from striped or straight-haired fur so that it will lie well on the finished garment, it is necessary to dart the collar so that the stripe and pile will follow the curve of the collar.

You may be able to cut the new collar from the original collar which will already have been darted. If not, you will need to alter the pattern by slashing from the neck edge curve at regular intervals (fig.1a) and open out the pattern so that the outer edge can be placed along the stripe (fig.1b). Open darts will form along the neck edge which should be cut out and over cast together.

Alternatively, the collar pieces may be placed on the fur so that the stripes seem to be radiating from the centre. This method of darting and cutting the collar is also suitable for use on fur trimming which can be purchased by the metre (yard) in strips of ready-joined pelts which are not usually sufficiently wide for cutting a shaped collar. It is not necessary to dart the collar on curly-haired furs.
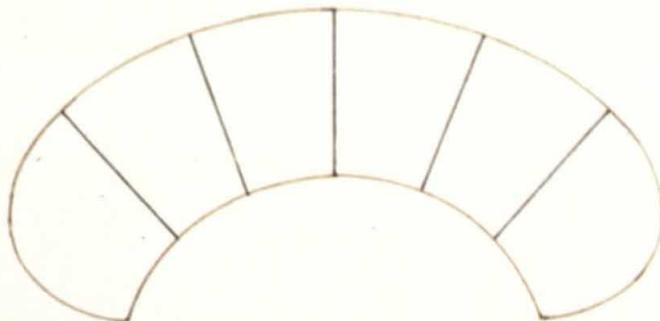
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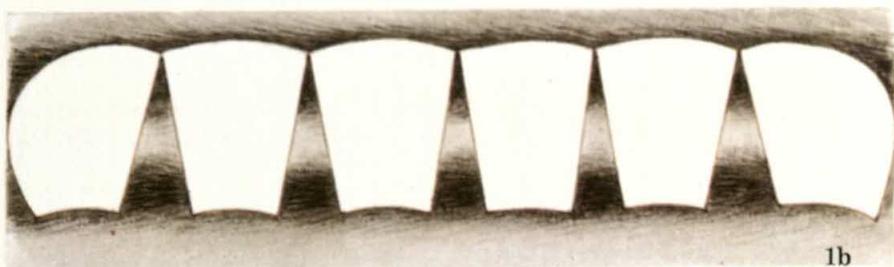
1b

Cutting out

It is important to remember that the fur for the new garment should require as little replacing as possible. To determine the location of the pattern pieces for the new garment, check the fur side for worn areas. If there are none, the pattern pieces may be placed on the corresponding pieces of the used garment. If, however, there are some worn patches, the pattern pieces should be rearranged to avoid using these areas if possible (fig.2).

Always place the pattern pieces on the fur side initially to check that you are using the fur to advantage, taking particular care with striped fur that the stripes will be suitably placed on the finished garment. Mark the position of each piece with glass-headed pins. Turn to the skin side and, using the pins as guides, re-lay the pattern pieces, mark accurately with chalk or a ballpoint pen and cut out.

Replacing or patching fur

Having cut out the new garment you may find that there are small worn areas you have been unable to avoid using and these must be replaced.

Mark the worn area by pushing glass-headed pins through to the flesh side as before. Mark out area to be replaced by connecting pin points (fig.3a).

Avoid any horizontal lines when marking out this shape, as these would make the repair conspicuous. Vertical or diagonal lines are lost in the pile of the fur.

Cut away the worn area (fig.3b). Use this piece as a pattern to mark out the replacement. Carefully matching the fur with regard to colour, nap and

density of hair, cut out a new piece. Sew in place with small overcasting stitches (fig.3c). If the repaired area is very wrinkled and uneven, it may be necessary to dampen and nail out just this area to flatten the skin.

Now you can proceed to make up the garment using the techniques given in Fur chapter 2.
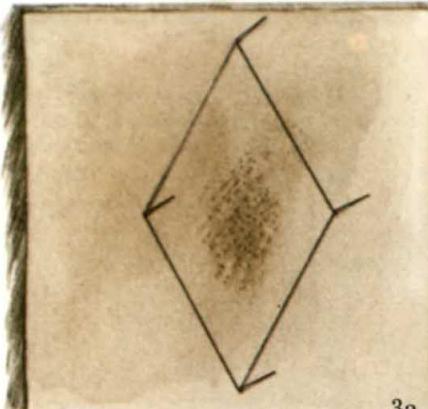
3a
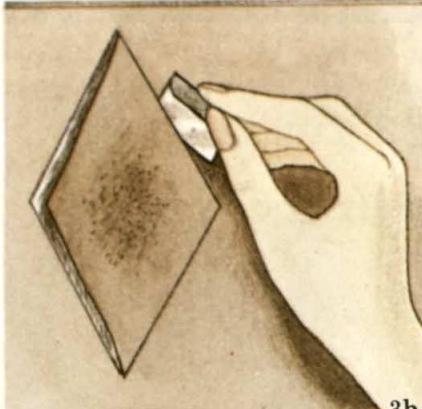
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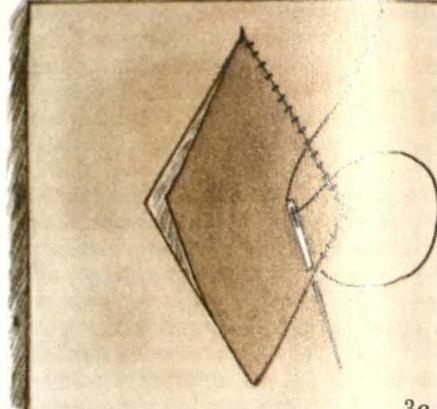
3c

A fur lining

If your fur coat is too worn to be restyled, it may still have sufficient life in it to be used as a luxurious lining for a coat or jacket. Short-haired furs are most suitable for this as long-haired furs are too bulky. Choose a loose fitting pattern as the fur will naturally take up a fair amount of room. Patterns designed to have a fur or fur fabric lining would obviously be ideal. Otherwise, adapt the lining pattern by elimi-

nating the centre back pleat and trimming away all the seam allowances. Make up the lining using the same techniques as for an outer garment and tape the edges.

Sleeves must be lined with a conventional lining fabric as fur would be too bulky. Make up the sleeve linings in the usual way and attach to the taped armhole edge of the fur by turning under the seam allowance and overcasting in place. Sew through the taped

edges to attach lining to garment.

Detachable linings. If you wish the lining to be detachable, thus giving the garment a longer wearing season, line the garment with a conventional lining first. Make up a sleeveless lining in fur, but finish the armhole and outer edges with grosgrain ribbon.

Press studs or press stud tape can be attached around the outer edges—to fasten the lining to the garment, leaving the hem free.

Fur collar and cuffs

If you wish to make a fur collar and cuffs for a fabric garment, it is advisable to make them detachable for cleaning purposes. You may find a pattern which gives special instructions for detachable collar and cuffs, otherwise the pattern may need some slight adaptations.

Collars. Use the collar pattern as a

guide but cut it at least 13mm ($\frac{1}{2}$″) wider around the outer edges (do not adjust the neck edge). This is to allow for the bulkiness of the fur and to ensure that the fur collar completely covers the fabric collar.

On many furs it will be necessary to have a centre back seam so that the fur can be cut to run in the same direction on either side of the front, or

you may need to adapt a shaped collar pattern as described previously. The revers may also be cut from the fur. Again the pattern should be cut slightly larger around the outer edge. The revers should then be joined to the collar section before attaching interfacing and taping the edges. The complete sections should then be lined and press studs attached (fig.4) to fasten to the garment.

To give extra thickness to a collar, particularly if the fur is of poor quality, a layer or two of synthetic wadding, depending on the fullness required, may be attached to the flesh side before lining.

Cuffs can be cut using a cuff pattern or the lower edge of the sleeve as a guide. Cut the fur cuff, again allowing at least 13mm ($\frac{1}{2}$″) more in width as well as in depth as the cuff has to fit right over the fabric cuff or sleeve. Make up, again using a layer or two of synthetic wadding if a rounded effect is desired. Then line the cuffs and attach them to the fabric cuffs or sleeves with press studs, following the same instructions as for a collar.
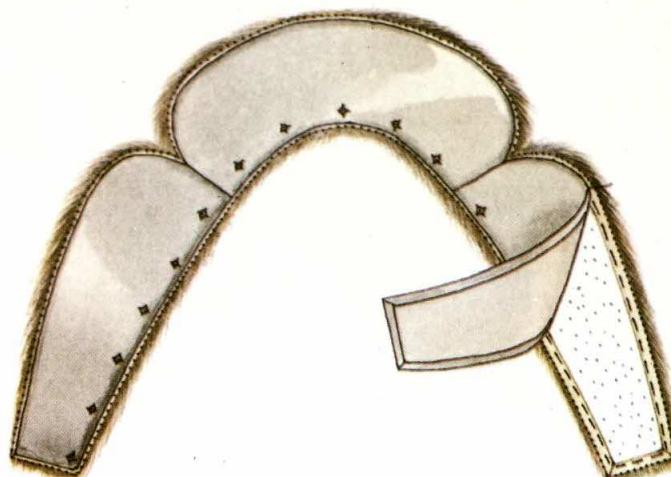
4

Sandra Lousada

Looking after fur

It makes sense to prolong the life of fur by looking after it properly.

Have your fur cleaned periodically by a professional cleaner—most reliable dry cleaners offer this service—it is inadvisable to try cleaning fur at home. Store furs on wide, well padded hangers in paper or cloth bags. Never use plastic bags as air cannot circulate and the leather will dry out, and keep in a cool cupboard. Really good furs will benefit from professional storage in vaults during the summer and the expense—which is not excessive—is well worth while.

If the fur gets damp, hang it up to dry away from direct heat. When dry, shake it firmly—never comb or brush fur.

An old fur coat can be picked up for next to nothing and remodelled into a short jacket like this simple informal style.

Avoid getting perfume on the fur as the alcohol in the perfume dries the skin and stiffens the hair. Do not damage the skins by pinning on brooches or flowers.

Interior design: colour schemes

Elizabeth Whiting

Colours will affect or create the atmosphere of a room, and can even help to disguise its shape if used carefully.

Before deciding on a colour scheme it is necessary to know something about the colours from which you have to choose.

Design know-how chapters 12-16, pages 336, 364, 392, 420 and 448 tell you about the theory of colour—this chapter discusses what happens when colours are used in interior decoration.

Bright colours will give a room a lively, even hectic mood, especially when many different bright colours are used. On the other hand, a splash of bright colour in an otherwise subdued room can bring it to life, and enhance the other softer colours.

Soft colours will give a room a calm, tranquil mood, as will neutral tones such as beige and cream.

The 'temperature' of a colour will also effect the mood. Colours such as red, orange and yellow make a room seem warm and cosy whereas other colours in the spectrum—the blues and greens—will make a room seem cool.

The size of a room can appear different depending on what colours are used. Bright colours make walls come forward, whereas pale colours and white make them recede. Thus, if you are decorating a very small room, pale colours will help to disguise the fact. Similarly in a very long narrow room, if you paint the two smaller walls a bright colour and the long walls white

Cool, soft colours in a related colour scheme create a tranquil mood.

the room will appear wider. Ceilings can also be disguised in this way—high ceilings painted a dark colour will appear lower.

Colour schemes

Now that you have some idea of what colours will do to a room, you must consider the room you want to decorate, and what mood you want to create—lively, tranquil, cool, warm

A related colour scheme using warm colours seems bright and sunny.

etc—and whether you want to disguise the shape of the room in any way.

Once you have decided on the basic colours you want to use, how are you to use them? All one colour in a room would look very boring and would be hard to live with. Colours must be carefully combined together to create interest. There are several ways in which this can be done.

A monochromatic scheme, which uses several different shades and tints of the same colour, is the safest scheme to go for, and can look most attractive if done well. Such a scheme could include many different shades of brown, from bitter chocolate to cream.

A complementary colour scheme is one which mixes opposite or contrasting colours, such as red and green. This should really be avoided when decorating a room as it is very difficult to make such a scheme work.

A related colour scheme which uses allied but different colours such as brown, rust and red, is perhaps the one that most people choose—it allows for a certain amount of licence with colour without running the risks of the complementary colour scheme.

Emphasis. Another consideration that must be made is how much of each colour or shade you are going to use—which colour will be given predominance in the room. Giving every colour equal predominance would look rather monotonous. To avoid this choose one main colour which will then be enhanced by the other smaller amounts of colour used with it.

In the related colour scheme, the brighter colours should probably be kept to small areas to avoid the room looking hectic, and the same is true for the complementary colour scheme. The monochromatic colour scheme will be dominated by one of the shades used—practicality may tempt you to go for the darker shades.

Creative ideas 70

Lavender cushions

This pretty selection of lavender cushions has a general theme in terms of colour but variety is achieved with the use of different, light-weight fabrics.

Each completed cushion measures about 7cm (3″) square, except for the gathered-up sachets, which are rectangular in shape. (If you choose a fabric with an open weave you will also need lining fabric.)

Cut out a back and front from the fabric, with a small seam allowance on each side.

Embroider fabric with cross stitch, satin stitch, leaf or running stitch in contrasting threads. Alternatively, sew on trimmings such as lace or ric-rac.

With right sides facing, sew the two pieces together leaving one side open.

Turn sachet right side out and fill with lavender.

Whip stitch open side seams together.

Note that the gathered-up sachets have been back stitched; in one example a frayed edge has been introduced.

For further finishing touches add bows or fabric flowers, as appropriate.

Spherical floor lamp

A simple way to make large spherical shapes is to coil the clay around inflatable objects.

The major advantage of this technique is that it is much quicker than unaided coiling. As the shape is built up on a support it is not necessary to wait for the clay to stiffen at any stage before adding further coils. Another advantage is that the result approaches the symmetry of a thrown pot, although only an expert potter could throw a pot as enormous as the one illustrated.

Suitable inflatables. Space-hoppers, available in most toy shops, are ideal for the purpose. They are very strong and provide a good, unyielding support when fully inflated. The most practical way of re-inflating a space-hopper in order to re-use it is to take advantage of a garage air line. This is much quicker than using a foot pump.

Kilns. Access to a large kiln is essential. To fire the finished result, a kiln chamber measuring 92cm x 76cm x 76cm ($3' x 2\frac{1}{2}' x 2\frac{1}{2}'$) is necessary.

If the kiln space available to you is smaller, it is possible to create a similar shape, half the size, by coiling on a well-inflated beach ball. It is also possible to coil around a balloon, but this is far more difficult because the surface yields and the shape tends to distort with the weight of the clay.

The clay. It is essential that well-grogged clay is used, otherwise the globe shape will not support itself and will sag during the firing.

You can add grog to any available clay body but, as a rather large quantity is necessary, it is more practical to use a proprietary crank, available from a pottery supplier, which is already well-grogged.

Arab town floor lamp

A large globe, about 60cm ($2'$) high, with a 160cm ($63''$) circumference, can be turned into an effective floor-standing lamp. A small nick is cut in the base to accommodate the flex and the finished globe is placed over a stock floor-standing light-bulb fitment.

Using a potter's knife, it is possible to cut a pleasing random design of holes in the globe to emit the light. As in the design shown, you can build an Arab town on top of the globe, using a combination of slabbed and thrown shapes. Each building can be joined to the basic pot over a hole so that light shines from the windows and doors.

You will need:
A well-inflated space-hopper.
A 28kg (56lb) bag of crank clay.
About 1kg (2lb) prepared throwing clay for the town.
Two plastic buckets, one thick rimmed.
Two towelling cloths, large enough to cover the buckets to prevent rim of bucket biting into clay.
A sheet of coarse sandpaper.
A board, about 26cm x 20cm ($10'' x 8''$).
A metal kidney.
Potter's knife.
Wheel for the domes (optional).
A suitable work surface for rolling out coils, preferably a wooden table top or large wooden board.

☐ Begin by rolling out several coils, each about 2.5cm ($1''$) in diameter and about 60cm ($24''$) long.

☐ When each coil is finished, flatten it into a more oval shape by knocking the whole way along its length with the side of your clenched hand.

It is best to roll the coils as you need them, because then you can judge the length and thickness you require.

The rolled coils for the base of the globe should be fairly thick, about 2cm ($\frac{3}{4}''$) for additional support. The coils for the main part should be roughly 1.2cm ($\frac{1}{2}''$) thick and for the top 6mm ($\frac{1}{4}''$).

☐ Place one of the towelling cloths over the rim of a bucket (this one does not have to have a thick rim) and sit the inflated space-hopper on it, horns uppermost.

Note: you are going to begin with the base of the pot, at the top of the space-hopper.

The size of the base will be established by the position of the first coil.

Although a narrow base can look graceful, it is not compatible with stability! Also, the deflated space-hopper must eventually be removed through the base aperture, which must therefore be at least 18cm ($7''$) in diameter.

Light shines from the windows and doors of an Arab town, lending an exotic touch to any room. Designed by Ann Lindsay.
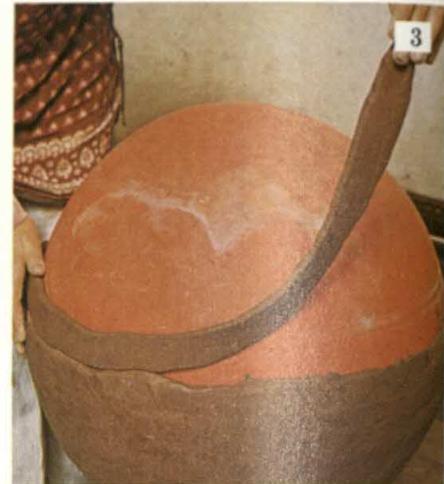
☐ Place the first coil lightly in position, joining the ends by pressing them together.

☐ Check that the positioning is not lop-sided by measuring down from the stopper, ensuring that all points are equidistant from it.

☐ Continue to add coils, joining each one to the one above (fig.1).

As joining can only be done on the outside, you must ensure that the work is neat. Press the coil ends together with your thumb, then smooth the clay until the joins are invisible.

☐ Work downwards, rolling out more coils as you need them.

Remember to graduate the coils so that the pot is thinner at the top than at the bottom. If the clay layer is too thin, especially at the base, the pot may be too fragile to manoeuvre in its raw state, and if you build too thickly you will find it impossible to lift the wet pot. When you reach the half-way stage you must turn over the space-hopper.

☐ Place the second cloth over the second bucket.

☐ As the part of the space-hopper which is to rest in the bucket is already covered with clay, the rim must be thick and covered with a thick cloth. A sharp edge would cut into the pot and leave a groove.

☐ Ease the space-hopper out of the original bucket by pulling on the cloth.

☐ Turn over the space-hopper and place it, horns down, in the second bucket (fig.2).

☐ You can now continue to coil (fig.3).

☐ You will need shorter and shorter coils as you proceed.

☐ Continue until the whole surface is covered and you can press the last tiny coil into place to complete the surface of the globe.

Drying out. Leave the pot until the areas you coiled last become fairly firm although not leather hard. Then reverse the pot again so that the horns are uppermost, remembering to use a cloth on the bucket as before.

The major part of the drying must be done with the space-hopper in this position because you must extract the stopper and allow a very small amount of air to escape two or three times during the process. This is because the
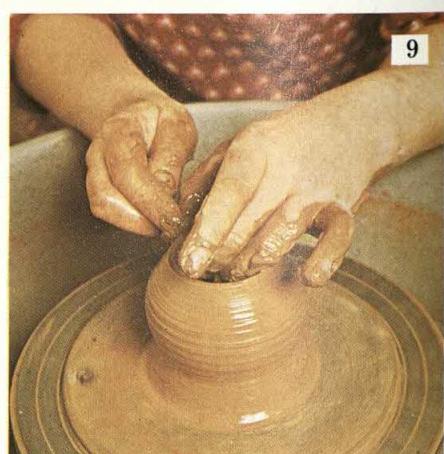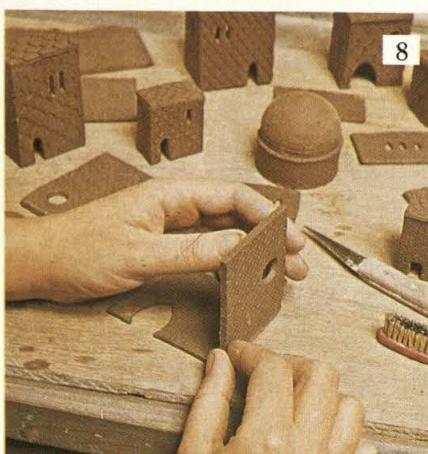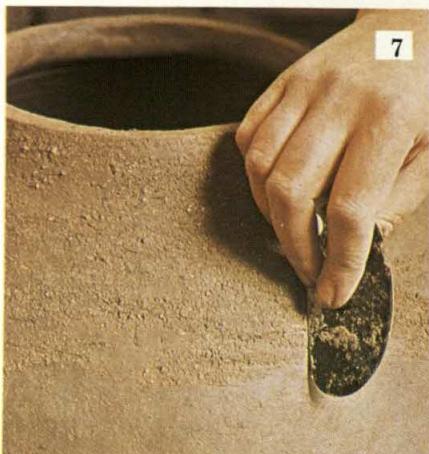
Smoothing

☐ Use the straight edge of the metal kidney to cover the surface with long, sweeping strokes (fig.7).

Because of the presence of grog in the clay, the scraping will produce minute hollows which will give the pot a pleasant, pitted texture.

☐ If you spot any serious indentations, work over the whole surface with a toothbrush dipped in vinegar, then fill the indentations with a little dry crank mixed with vinegar.

☐ Turn the pot over to rest it on its base, being very careful to put it down straight or the base may distort.

Making the town

Houses. Simple houses were made, using slab techniques (fig.8). The patterned effect was achieved by pressing a piece of nylon mesh (part of a bag which had contained supermarket oranges) on to the flat slabs of clay while they were still damp. Windows and doors were cut out with the potter's knife. The outline for the arched windows was made by pressing a paperclip on to the damp clay.

Domes. The domes were thrown on a wheel. The technique is first to throw a very small, rounded pot without a base and then to draw the sides gently inwards and over until they meet and can be pressed into a point (figs.9 and 10). If you do not have a wheel, domes can be built with coils, Clay chapter 22, page 954. Turn the finished dome over and pinch the top into a point.
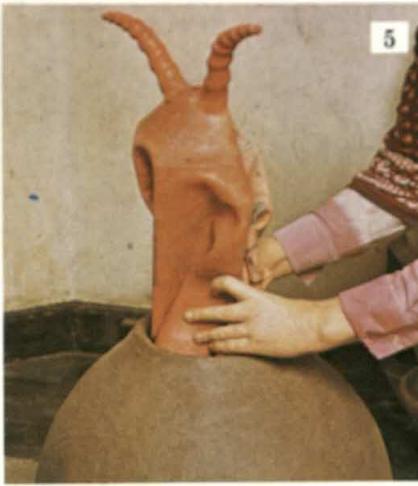
clay shrinks as it dries and would otherwise crack.

You can establish how much air should be let out, and at what point, only by experience, as the speed of drying-out varies enormously. For instance, if you dry the pot in the open on a warm, breezy day, you will probably be able to extract the space-hopper after a few hours. If you dry it indoors, in cool conditions, the process may take three or four days.

Cracks. Should a crack appear during the drying-out time, scrub the area with a wet toothbrush, work a little stiffish crank into the crack, then let a small amount of air escape.

The presence of a crack is an indication that you should have let a little air out

sooner. But do be cautious. It is better to have a rectifiable crack than to let out too much air too soon and watch your pot sink irremediably out of shape.

Extracting the space-hopper. When the clay is leather hard, prepare to remove the stopper.

□ Do this cautiously (fig.4). Do not fully extract the stopper so that if you see the sides of the pot sinking in as air escapes, press back the stopper and leave the pot to dry out further.

When the stopper is out most of the air will escape. If the pot is ready, the rest of the air must be pressed out.

□ Put your arm inside the pot and squeeze the space-hopper firmly but gently against the interior clay wall.

□ Then use both hands to squeeze the

space-hopper as small as possible.

□ Pull it out gently through the hole, taking great care not to damage the base of the pot (fig.5).

Levelling the base. As the base ring is almost certainly rather irregular, it must be filed level.

□ Wrap a sheet of coarse sandpaper over a small board and rub it over the base (fig.6).

When every part of the base ring can be seen to be rough with scratches from the sandpaper, it is level.

This is important because the lamp must sit flat on the floor or light escaping at the base will detract from the effect.

□ Use the point of the knife to cut a tiny nick in the base for the flex.
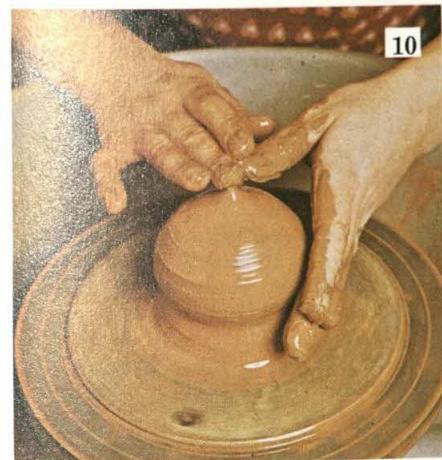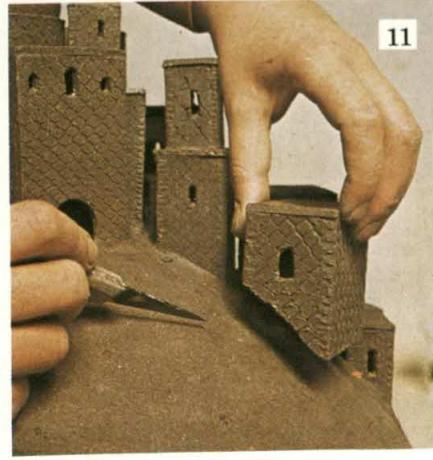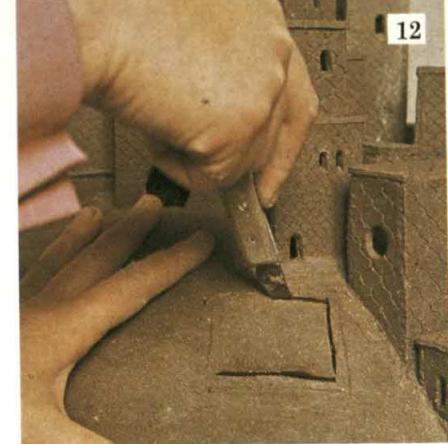
Designing the town. For the best effect, begin at the top of the globe and work downwards from a tall, central focal point.

When you have decided on the placing of a building you will find that it is necessary to cut its base at an angle to fit the curve of the globe surface.

The closer the town descends towards the centre of the globe, the steeper the base angle you must cut on the buildings.

□ Hold each building in place then

draw around it with the knife point (fig.11).

□ Use the knife to cut a hole in the pot slightly smaller than the mark so that light can be released into the building and out through its windows and door (fig.12).

□ Score the surfaces to be joined and attach the building to the globe, over the hole, with slip.

It is advisable to work tiny coils around the bases of all the buildings. The light inside will make any shoddy workman-

ship very noticeable and the minutest gap between the surface of the globe and the base of a building will be glaringly obvious.

Do not allow the village to descend too far down the globe or the result will look top heavy.

Decorating. Make sure that the pot is absolutely dry before biscuit firing. The simple use of oxides (see Clay chapter 18, page 788), suggesting a sandy colour and texture as in the pot illustrated, can be very effective.

Hand stitching thick leather

Tools for stitching (from top left in clockwise direction) stitching clams, thread, mallet, stitching awl, beeswax, needles, dividers, pricking wheel, pricking iron.
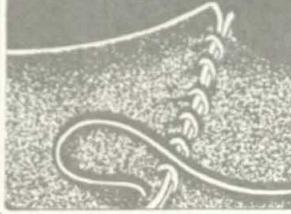
Kim Sayer

Unless you have an industrial sewing machine (which is unlikely), heavy leather such as cow-hide must be stitched by hand. The prospect of hand stitching a double thickness of cow-hide, which can be up to 12mm ($\frac{1}{2}''$) thick, may be somewhat daunting. However, once you have the right tools, you will find that stitching heavy leather is not difficult.

Stitching leather

Thick leather is stitched with blunt ended needles and the holes are made with a sharp tool called a stitching awl. One or two needles can be used.

One needle. If the stitching is done with one needle, a back stitch is used. This stitching is adequate for some objects, but is not very strong, and cannot be used when both sides of the stitching will be seen, as it has a 'right' and a 'wrong' side.

Two needles. Stitching done with two needles is stronger, looks neater, and is the more usual of the two types of stitching. For this a running stitch is used, with the needles going through the leather from opposite sides. The finished result looks like the 'right' side of back stitch on both sides.

In this chapter both methods of stitching are used to make a picture frame and a money belt.

Thread. A special type of linen thread is used for stitching leather. It comes in a variety of thicknesses. The thicker the leather to be stitched the thicker and stronger the thread must be. Match the colour of the thread

to the colour of the leather you are using, or use contrasting thread. Beeswax is used for rubbing on the thread before stitching. This can be bought in block form in hardware shops.

Picture frame

The picture frame is made by stitching three pieces of leather together.

You will need:

Tools

A sharp knife such as a Stanley knife.

A steel rule at least 60cm (2′) long.

A pair of dividers with adjustable screw.

A no.6 pricking iron. This looks rather like a fork and is used for marking out the position for the stitches by pricking small evenly spaced marks in the leather. A no.6 pricking iron makes five stitch marks per 2cm (six marks per inch). Pricking wheels are used to mark stitches along curved lines.

Stitching clams or a vice. This is to secure the leather while it is being stitched.

Edge shave or medium grade glass-paper.

A diamond shaped stitching awl. This is a sharp pointed tool rather like a bradawl which is used to make holes in the leather before pushing the needles through.

A mallet or hammer.

Materials

Ten 1.3cm ($\frac{1}{2}''$) tacks or Evo-stik to hold the leather in place while it is stitched.

A rag for applying dye and cloth for polishing.

A piece of cow-hide, 2mm ($\frac{1}{10}''$) thick large enough to cut three pieces: one of 10cm x 15cm (4″x 6″) and two of 6.8cm x 10cm ($2\frac{3}{4}''$x 4″). In this chapter black cow-hide is used, but if you have a piece of shoulder left over from the objects made in the previous two chapters, use this.

Two size 4 harness needles.

A reel of linen thread.

Two pieces of transparent acetate 5.5cm x 9cm ($2\frac{1}{4}''$x$3\frac{1}{2}''$).

Beeswax.

Shoe dye, such as Lady Esquire, the same colour as the leather for staining the cut edges.

☐ Following instructions for cutting in Leather chapter 4, page 1710, and using the sharp knife, steel rule and dividers, cut out the three pieces (fig.1). To cut the 'windows' in pieces B and C, set the dividers to 1.3cm ($\frac{1}{2}''$) and scribe a line on the grain side round the edges of the two pieces. Then using the steel rule and sharp knife cut along the scribed lines and remove centre pieces.

☐ Using the edge shave or medium grade glasspaper, trim the outside edges of the frame on the grain side only.
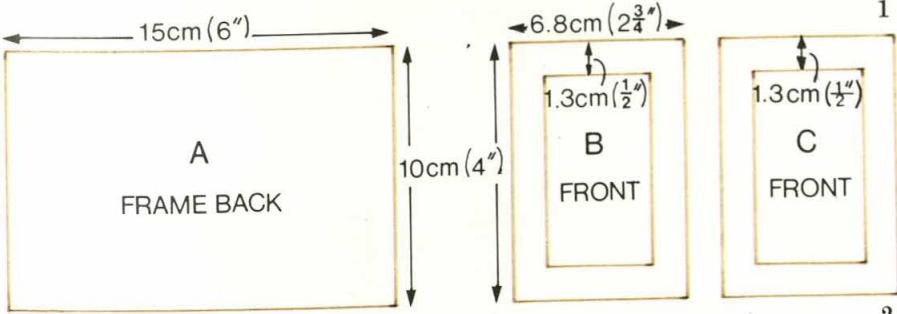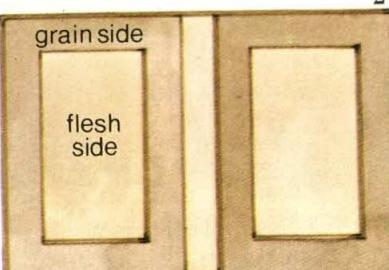
The stitching on the picture frame is both functional and decorative. Designed by David Boot.

Staining the edges. The cut edges will be a pale creamy colour (the colour of natural hide), and if you are using dyed leather they must be stained to the same colour.

Ordinary shoe dye is adequate. (Dyeing leather is described in detail in a later chapter.)

☐ Apply the shoe dye to the cut edges and rub dry with a cloth.

Marking out the stitches. Before you start to stitch the leather, the stitch marks must be made.

☐ Set dividers to 3mm ($\frac{1}{8}$") and lightly scribe a line on the grain side round the edge of piece A. This marks where the stitching will come and ensures that it will be along a straight line.

Stitch marks are now made along the scribed line. To do this place the teeth of the pricking iron along the scribed line.

☐ Gently tap the handle of the pricking iron with a mallet or hammer so that the teeth make marks on the leather.

☐ Remove the pricking iron and for the next lot of marks, place the first tooth of the iron in the last-made hole to ensure even spacing.

☐ Continue all round piece A along the scribed line. Try to get a mark in each corner.

Position the pieces (fig.2) and glue together along the edges to be stitched or hammer a few tacks into the stitch marks through both thicknesses of leather to hold the pieces in place.

☐ Insert the assembled picture frame into the stitching clams or vice. This will leave both hands free to do the stitching. If you are using a vice, wrap the leather in a cloth to protect it from pressure. The leather will be standing up vertically—the stitching is done towards you along the uppermost edge.

Right-handed people should put the back of the picture frame on the right-hand side so that holes can be made in the stitch marks holding the awl in the right hand. If you are left handed, work the other way round.

☐ Cut a piece of thread to about 1.5m (5').

☐ Using a rag, rub some beeswax on the thread.

☐ Thread a needle on to each end of the thread, leaving a turn-back of about 15cm (6") at each end.

☐ The stitching should start along the top edge of the frame in the corner furthest away from you.

☐ Make a hole with the stitching awl through the second stitch mark and push one of the needles through to the other side. The diamond-shaped holes

1

←———15cm (6")———→

←6.8cm (2$\frac{3}{4}$")→

```
A
FRAME BACK
```
↕ 10cm (4")

1.3cm ($\frac{1}{2}$")
```
B
FRONT
```

1.3cm ($\frac{1}{2}$")
```
C
FRONT
```

2

grain side

flesh side

1. The three pieces for the picture frame—be sure to get the corners square.

2. Place the two front pieces in position on the back, flesh sides together. Glue or tack in place.

made by the awl should be at an angle to the line of stitching (fig.3).

3. *Holes at angle to stitching line.*

☐ Pull some thread through the hole so that there is an equal amount on both sides.
To form a stitch both needles are pushed through the same hole in opposite directions. The left-hand needle, ie the needle on the left-hand side, is always pushed through to the right-hand side first, and the right-hand needle second. This is so that the thread on the left-hand needle can be pulled down in the hole to allow the right-hand needle to pass over it (fig.4).
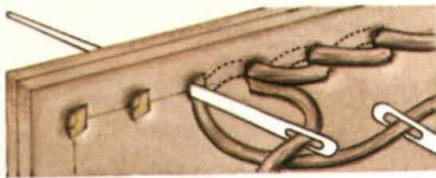
4. *Keep right-hand needle uppermost . . .*

The thread on the right-hand needle must always pass over the thread on the left-hand needle to ensure even stitching (fig.5). If this is not done, the stitching will look messy.
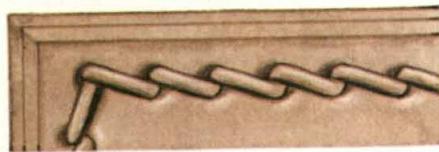
5. *. . . to make the stitching even.*

☐ Push both needles through the first hole to opposite sides, then back through the second hole to opposite sides. Continue stitching round the frame using the awl to make the holes, and leaving inner sides open.
☐ To secure the thread at the end of the stitching (or if you run out half way through), go back one stitch mark and push the left-hand needle through the hole leaving the stitch loose.
☐ Push the right-hand needle half-way through the same hole, twist the loose stitch twice round the needle, and pull both threads tight. This locks the stitch in place.
☐ Pass the right-hand needle through the next stitch so that both needles are on the same side. Trim off the ends and the picture frame is complete.
☐ Slot two pieces of acetate into each side of the frame to protect the photographs.

Money belt

This money belt includes the techniques for skiving, and stitching with one and two needles.

You will need:
Tools as for the picture frame, plus a revolving punch, a tool for securing the press stud fastener to the purse (see Leather chapter 2, page 1060) and a skiving knife.

Materials
Piece of cow-hide 2mm ($\frac{1}{10}$") thick, large enough to take the pieces in fig.6. If you have used a shoulder to make the objects in the previous two chapters and there is enough left over, use this.
Press stud fastener, 1.3cm ($\frac{1}{2}$") diameter.
Belt buckle with an inside width of 4cm ($1\frac{1}{2}$").
Thread, beeswax, leather dye as for picture frame.
☐ Cut out the pieces in fig.6 and round off the belt end following instructions in Leather chapter 4.
☐ Trim the cut edges with the edge shave or medium grade glasspaper. Trim only the grain side edges of the purse.
☐ Stain all the cut edges as for the picture frame.

The purse is made by stitching two pieces of leather, and attaching a loop at the back through which the belt will pass. A press fastener is used to close the flap of the purse.
☐ Set the dividers to 3mm ($\frac{1}{8}$") and scribe a line round the edge of the back on the grain side, and round edges of piece E.
☐ Using the pricking iron and mallet, prick stitch marks along scribed lines round the edge of piece D, and at both ends of piece E, leaving a section in the middle, slightly wider than the belt (fig.7).
☐ Position piece E on the grain side of piece D (see fig.7) and secure with a few tacks or adhesive.
☐ Place in the stitching clams or vice and stitch piece E to piece D using two needles, as for the picture frame, but leave the piece of the loop that is flush with the edge of piece D unstitched. This will be stitched when the two sides of the purse are stitched together.
☐ Using a revolving punch, make two holes 6mm ($\frac{1}{4}$") diameter to accommodate the press fastener, one in the back (piece D) and one in the front (piece C), both 1.3cm ($\frac{1}{2}$") away from the edge and 5cm (2") from either side.
☐ Attach the press fastener to the
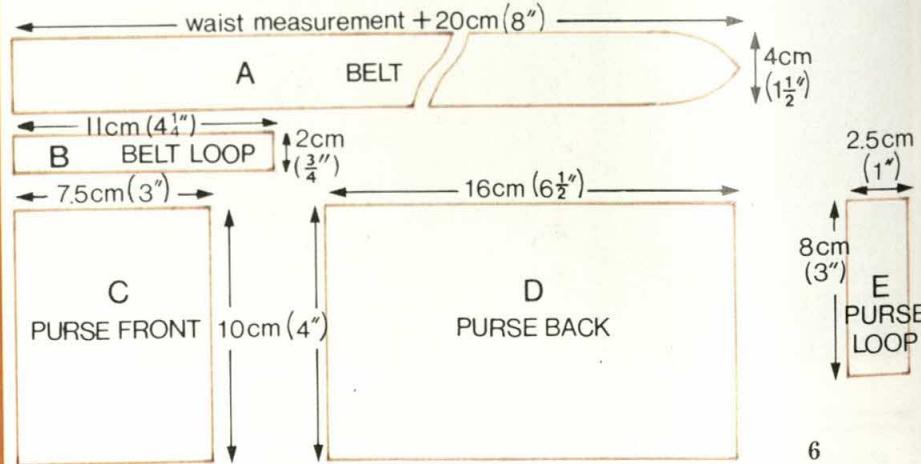


6. *The pieces for the money belt—the size of the purse can vary.*

7. *Stitch each end of piece E.*

8. *Pieces C and D ready for stitching.*
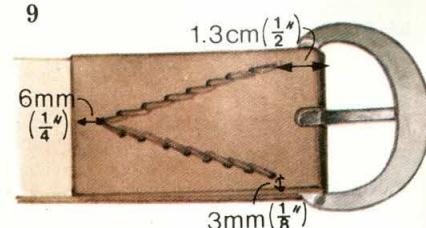
9. *Line of stitching for buckle.*

10. *Skive both ends of belt loop.*

purse using the punch as shown in Leather chapter 2.

☐ Position piece C on piece D flesh sides together (fig.8) and secure with a few tacks or adhesive.

☐ Place the purse in the stitching clams or vice and, using the stitching awl and two needles, stitch the two sides of the purse together. For decoration continue stitching through the single thickness of leather round the flap of the purse.

The belt. Make the slot for the buckle and punch the fastening holes as shown in Leather chapter 4.

Skiving. The buckle is stitched on to the belt but, before this is done, the end of the belt is skived, ie some of the flesh side is shaved off to make it less bulky. Cow-hide is skived in the same way as suede, see Leather chapter 2 but, as cow-hide is considerably thicker and tougher than suede, more can be taken off without weakening the leather.

☐ Skive down about 4cm (1½″) at the end of the belt on the flesh side, so that when the end is folded over there is a smooth join.

☐ Then following fig.9, carefully scribe a V-shape to mark the line of stitching on the grain side at the end of the belt.

☐ Using the pricking iron and mallet or hammer, make stitch marks along the scribed lines.

☐ Fit the buckle tongue into the slot, fold the end over and glue in place.

☐ Secure in stitching clams and stitch with two needles as before.

The loop (piece B) must be able to take the double thickness of the belt. Because the belt loop is small and will not be under any great strain, it can be stitched with a back stitch using one needle.

☐ Following fig.10 make four stitch marks on each side of one end of the loop, 3mm (⅛″) away from the edges.

☐ Skive down about 1.3cm (½″) at each end of the belt loop on the flesh side of the end where the stitch marks have been made, and on the grain side of the other end, so that when the belt loop is folded over it is the same thickness all the way round.

☐ Overlap the belt loop ends, grain side outermost, so that one end of the loop comes up to the third stitch mark on the other end.

☐ Secure in stitching clams.

☐ Take one needle, thread it with some waxed thread and knot one end.

☐ Using the stitching awl to make the holes, push the needle through the second stitch mark from the end leaving the knot on the inside.

☐ Push the needle through the first stitch mark to the inside, and through the third stitch mark to the outside.

☐ Continue with back stitch up one

side of the belt loop and down the other side.

☐ To finish off, leave a stitch on the inside loose, push the needle half way through to the inside, twist the loose stitch twice round the needle and pull the needle through.

☐ Trim off the thread.

The money belt can be used for such things as train tickets as well as loose change, and will enable you to dispense with a handbag when not otherwise necessary. Designed by David Boot.

☐ Slot the loop and the purse on to the belt, and the money belt is complete.

Seagrass seating
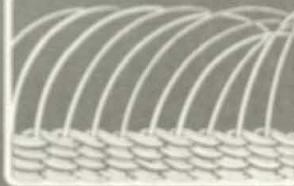
Most households have the odd chair that is useless because the seat is worn out. But whether the seat was originally upholstered or caned it can be repaired quickly and easily with seagrass. Seagrass is both inexpensive and quick to work with and this makes it a useful alternative to cane or upholstery. Most four-sided frames without arms, or with open arms, can be covered with seagrass; this includes square and rectangular frames and chair frames wider at the front than at the back. Even circular chairs are suitable providing they have four legs. The only unsuitable type of frame is one where the pieces vary sharply in thickness, for example if decorated with deeply cut carving or turning.

Seagrass is a tough, natural fibrous material, shiny and pale green or beige in colour. It is bought woven into a continuous cord, like string. It is generally sold in hanks and two will be required to cover the seat of a large chair.

Seagrass is stronger, more flexible and cleaner to use than rushes (Basketry chapter 17, page 1952).

Alternatives to seagrass are thick brown string, seating cord and macramé twine.

Thick brown string is just as strong as seagrass and it is easier to work with but is not so attractive.

Seating cord is strong and tightly twisted to give it a fine texture. It is available in bright colours although natural colours are usually preferred. Macramé twine is finer and smoother than other types of seating cord but it is more difficult to handle.

Tools

No special tools or equipment are needed for the job. There are, however, some that will make working a lot easier.

As seagrass comes in continuous lengths it will speed up the work if you make some wooden 'shuttles' on which to wind the seagrass.

Shuttles can be used to pass through the chair frame, gradually unwinding the seagrass as work progresses. Make a shuttle out of very thin wood (such as from orange crates) or 3mm ($\frac{1}{8}$") plywood, cut into a rectangle 23cm x 7.5cm (9"x 3") with V-shaped notches in each short end (fig.1) so that the seagrass can be wound on lengthwise.

A screwdriver is useful for pushing the loops of seagrass along the chair frame to tighten them.

23cm(9") 7.5cm(3")

Paul Williams
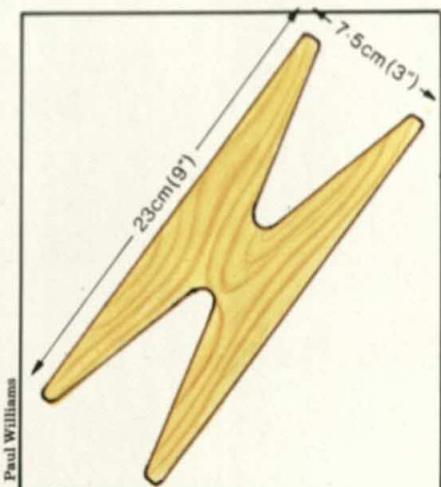
1. Shuttle used for seagrass.

Preparation

Seagrass must be soaked in water to make it pliable. This should be done after winding it on the shuttles to prevent it from shrinking. Place a weight on the seagrass to keep it under water and leave it for half an hour. Once the seagrass is removed from the water, cover it with a wet towel to keep it damp.

To prepare a chair, simply remove all traces of the old covering to expose the frame. Polish or varnish the chair before starting the seating.

Seating

The basic method is for a perfectly square frame with all four sides the same length. It must be modified slightly for rectangular frames or frames with sides of unequal length.

The technique is the same as rush seating, except you do not have to twist the seagrass or tie in new lengths (Basketry chapter 17, page 1952).

Typical seagrass seating includes a pattern which interlocks to form a neat X-shape with arms running towards the four corners. Alternative patterns have a more woven appearance.
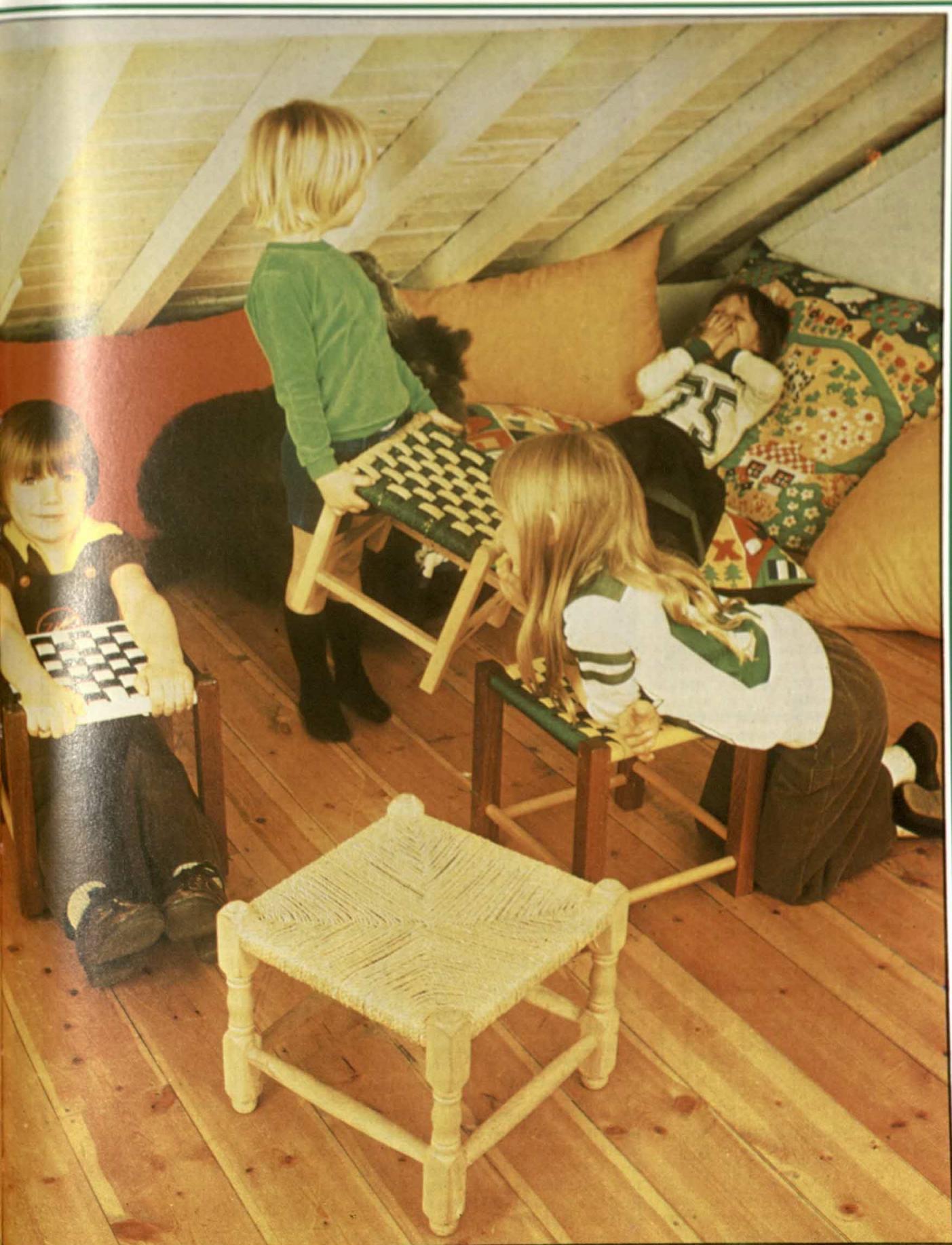
The pattern forms automatically as you work round the frame. A very simple loop secures the end at one corner. Following fig.2, continue to make loops round the frame working towards the centre of the seat.

Pull the seagrass as tightly as you can and, using the screwdriver, push the rows of loops together.
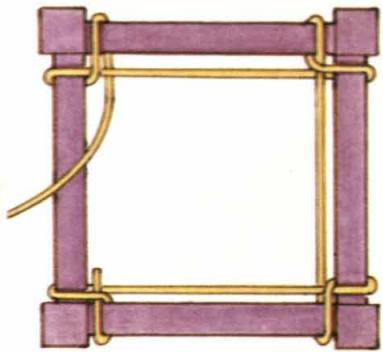
2. Loops are repeated at each corner.

When you have gone round the frame four or five times, passing the shuttle through the frame, you will notice the formation of the pattern. Push the seagrass around with your fingers to make the arms of the X-shape straight. Continue doing this as you work and keep each successive round as close as possible to the previous round.

When you have completely covered the chair seat with seagrass (you will find it easier to do the last few rounds without the shuttle) stop at a point which leaves the loose end in the middle of the chair pointing downwards. Tie the loose end to any of the strands on the underside of the seat.

Rectangular frames are started in exactly the same way as square frames. When the shorter sides have been filled with seagrass continue along the longer sides with a series of figure-8 loops (fig.3). Tie the loose ends as for a square seat.

Melvin Grey

Above: chair with varnished seagrass.

Paul Williams
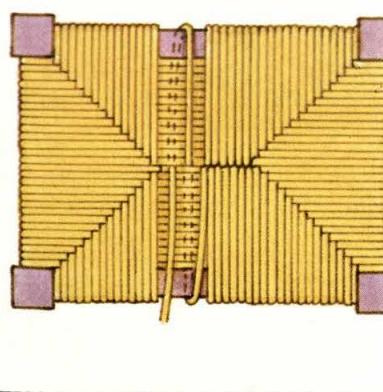
3. Finishing a rectangular frame.

Odd shapes, such as a chair with a wide front and a narrow back, are worked in a slightly different way. To broaden the row of loops along the front, the seagrass is looped round twice on every alternate round (fig.4). Start as usual at a corner, and take the seagrass round the frame and over to the other side. On the second round, instead of looping the rush under the frame and immediately passing it to the next side, loop it round twice and then pass it on. (Note: this is only done on the front half of the frame.)

As soon as this alternate double looping
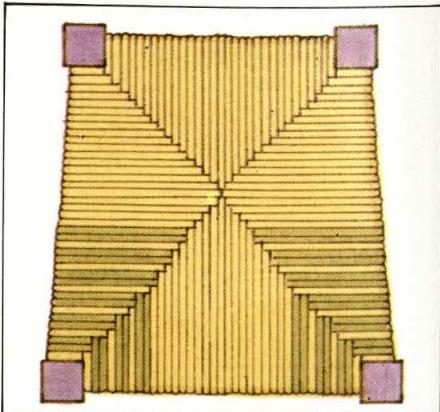
4. Double loops on alternate rounds.
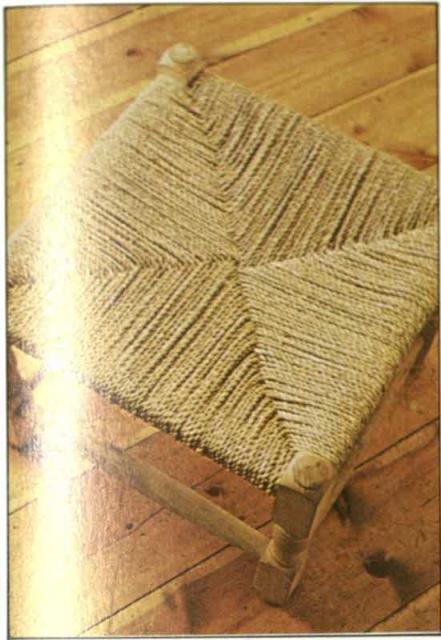
Above: detail of one of the most popular seagrass patterns.
Below: alternative pattern worked with natural and coloured seagrass.
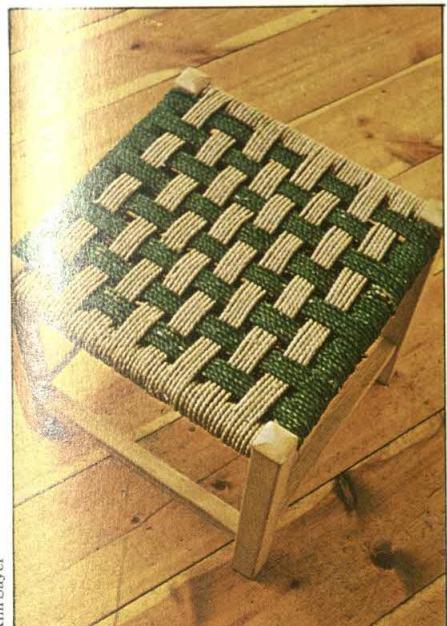
has compensated for the slant, and the area left to be covered is square or rectangular, continue without the double loop. Tie off on the underside of the work.

Most chairs that are not square can be worked in this way. For example, a chair with the front and back rails curved slightly downwards will not have a level seat, but the seating is still worked as described above. As long as the seagrass is pulled tight and pushed close together the end result will be perfect.

The seagrass can be coated with polyurethane varnish. Do a test patch to see if you like the effect.

Alternate patterns

A different pattern can be used and varied if desired on square frames. You will need a length of dowelling 12mm ($\frac{1}{4}$") in diameter and slightly longer than the length of the chair frame.

You will find it easier to work the second stage with the seagrass threaded through a large needle (or one fashioned out of a wire coat-hanger).

First stage—mark the centre of each side of the frame and make sure that you weave the same number of rounds on either side of the marks.

Tie the end of the seagrass, on the underside, to the frame. Place the dowelling across the centre of the frame at right angles to the direction in which you are working.

Loop the seagrass (on the shuttle) up and round the front rail twice. Take it across to the opposite side on the underside of the frame and wind it around the frame twice. Return to the front on top of the frame.

Take the next four rounds straight round the frame, without the double rounds, going from front to back on the underside and back to front on the top.

Repeat the two wraps or double loops on each side and then repeat the four straight rounds etc (fig.5). Proceed in this way across the frame remembering to check that you have the same number of strands on either side of the half-way marks. End the weaving with double loops at front and back.
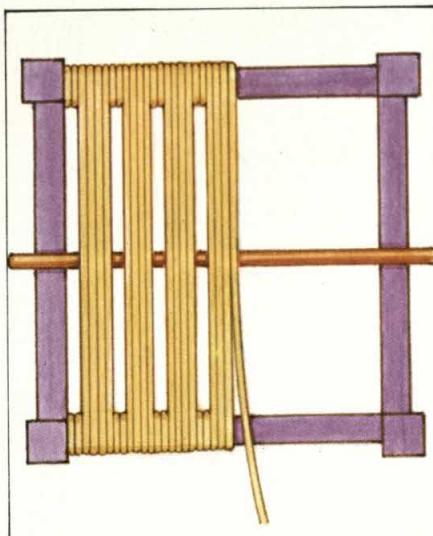
5. *Top view only of pattern.*

If there is a long length of seagrass left take it round to the adjacent side, on the inside of the frame, to begin the second stage, otherwise tie it in on the underside of the frame and start a new length of seagrass for the second stage. Remove the length of dowelling from between the seagrass.

Second stage—this is worked similarly to the first stage but the seagrass should be threaded on a needle. (The shuttle could be used initially but, as the weaving progresses, a needle will be more suitable.)

Make two double rounds to start, then weave under the first four strands and over the next four etc, and repeat the double loops at the opposite rail. Return on the underside, weaving under and over as before. Weave four straight rounds and then repeat the double loops etc.

When weaving the top you will find it easier if you use the dowelling to raise the alternate four strands going in the opposite direction so that you can pass the needle through easily to the other end (fig.6).
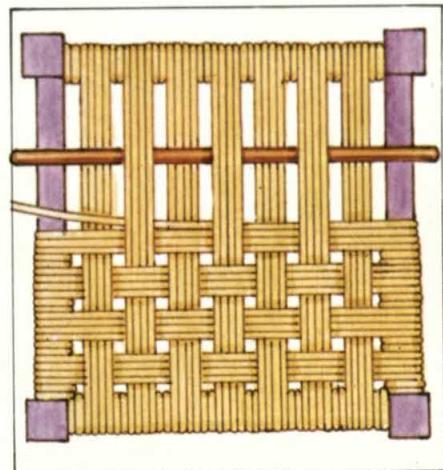
6. *Dowelling lifts alternate sections.*

Joining in, should it be necessary, must be done on the underside. Tie the old end and the new end together so that the knot (fig.7) will be hidden on the underside of the frame.
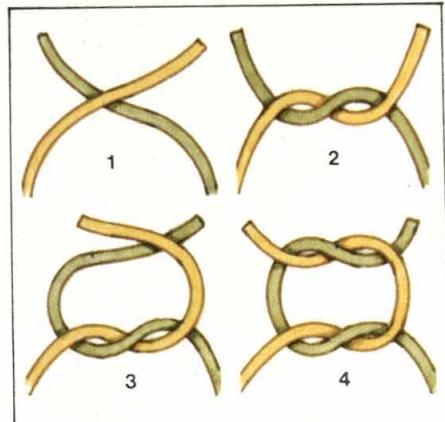
7. *Reef knot used for joining.*

Adjusting the pattern. The pattern is simple to alter; instead of two double loops and four straight rounds you can do various combinations, such as one and three or two and five etc.

Simple theatre puppets

The origins of puppetry go back to prehistoric times, but puppetry first developed into a sophisticated art in the Far East. The Orient was the main source of ideas and techniques for much of the puppetry which then developed in the West, although Europe and the USA have since evolved their own separate traditions.

There are many different types of puppet but some of the simplest to make are two-dimensional puppets made of card.

The ones described here are the kind suitable for use in the model theatre described in Paper chapter 51, page 1944. Cardboard theatres like this were popular during the 19th and early 20th centuries for enacting plays with card puppets which were operated from the wings by a rod attached at one end to the base of the puppet. These rod puppets represented different characters which could be slid back and forth across the stage, making their exits and entrances from the sides.

Toy theatre puppets

Since the figures used with this type of theatre are the simplest kind of rod puppet, you can easily build up a collection of sets of characters for different plays.

You could trace figures from a book; for example, the characters in nursery rhymes or fairy tales; trace the patterns given here, or make up your own characters. Make sure that all the figures you make are the right size for the theatre, neither too big nor too small for the stage, and in proportion to one another.

You will need:

Thin white card, stiff enough for the figures to stand up without bending over, but not so thick that you cannot easily cut through it.

Tracing paper, if you are using the trace patterns given or an illustration from a book.

Pencil.

Black felt-tipped pen.

Coloured pens, such as Magic Markers or 'Mr Sketch' instant water colours, which are non-toxic.

Scissors, sticky tape.

Thin sticks or stiff wire about 30cm (1') long, one for each puppet. These become the rods.

☐ With a pencil, trace or draw the designs on to card.

☐ Outline the designs with black felt-tipped pen and fill in with colours.

☐ Cut out the designs, making sure that each one has a continuous straight

The model theatre made in the previous chapter is shown here in action. The card puppets are operated by rods which are attached to their base, enabling them to be slid across the stage.

1
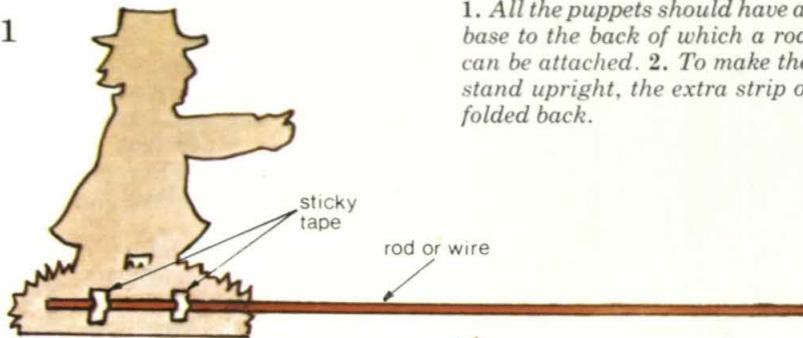
1. *All the puppets should have a straight base to the back of which a rod or wire can be attached.* **2.** *To make the scenery stand upright, the extra strip of card is folded back.*

base (which can also be coloured, to represent grass, for example), to which the rod can be attached (fig.1).

☐ On the back of the figure, attach the stick or wire with sticky tape (fig.1). You can make scenery in the same way, although of course you will not need the rods. Cut out trees or bushes from thin card, allowing an extra strip along the base which can be folded back to make a stand (fig.2).

More ideas for making two-dimensional puppets are discussed in a later chapter.

sticky tape

rod or wire

2

fold back

fold back

The figures on this page can be traced on to card, coloured and used in a play about Bo-Peep. The figures of the forester and his family can be copied in the same way. Don't forget to allow an extra strip of card along the bases of the scenery to fold back as a stand.

Silver ring with box setting

The box setting is one of the most effective of the stone-setting techniques and, knowing how to make it, will allow for more scope in your jewelry design. The size of the setting can vary from very small, as shown in the picture, to much larger pendant pieces, brooches, or bracelets.

Choose a fairly deep oval or round cabochon shaped stone with an even edge and flat in section. If the stone is an uneven shape it is difficult to fit the bezel around it neatly and tightly.

The bezel is made from a piece of silver, the length of which is equal to the circumference of the stone. It must be high enough to cover the widest part of the stone, with a fraction over. This fraction is the part which is pushed over to hold the stone in place. Therefore, if you have chosen a stone with a round or uneven base you may have to use a wider strip of silver for the bezel. Use a narrow strip of paper to measure around the stone in order to get the exact width required for the bezel.

The ring

You will need:

6mm (¼″) wide sheet silver, 1mm (gauge 18-19) thick. Buy enough to go around the finger for which the ring is intended.

.8mm or 1mm (gauge 20-21 or 18-19) thick sheet silver for the base of the setting. The silver for the base must be equal to the size of the stone plus 3mm (⅛″) all round.

A strip of .6mm (gauge 22-23) thick sheet silver for the bezel—length and width to suit the stone.

Note: always specify which gauge system you are referring to when buying or, alternatively, give the thickness in millimetres. The system used here refers to B & S and SWG (see Metal chapter 3, page 127).

Medium and easy silver solder, borax flux and alum pickle.

Round-nosed pliers, asbestos pad, wooden or leather mallet, blowtorch, pencil and fine brush.

Fine grade emery paper, tripoli and jeweller's rouge.

Jeweller's piercing saw or tin snips, file and ring stick.

Push-over tool, a metal rod with one end flat and a handle on the other. Obtainable from jeweller's suppliers.

Other tools and materials as for previous chapter.

☐ Shape the silver for the ring band around the ring stick using a wooden or leather mallet.

☐ Solder the ends together with medium solder and shape to a perfect circle on the ring stick.

☐ File a flat area where the seam of the ring band is, in order to get a good join with the base of the box setting (fig.2).

Apart from using the claw setting already described, stones or any other objects can be set using a bezel. The bezel is a collar usually made from a thin strip of metal, which encircles and holds the stone closely. It is often used to set cabochon stones, either flat or rounded in section.

Care must be taken in determining the width of the bezel strip (fig.1). If it is too high it will hide most of the stone and if too low it will not secure the stone properly.

The bezel is soldered to a base and the stone set inside. The bezel is then pushed against the side of the stone to hold the stone firmly. Settings which are made like this are also called 'box settings'.

Though box settings are more difficult to make up than the claw setting, they are most attractive and the technique can be mastered easily with patience. The techniques used are similar to those in previous metal chapters.

Different sized stones set using the bezel method. Designed by Sue Wallace.

1. *An example of a bezel setting.*

2. *Flat area ensures good join to base.*

3. *Solder in position before heating.*

4. *Ring band placed on base of setting.*

5. *Carefully press top of bezel over stone.*

Paul Williams

solder will then run around the join. Remove the flame as soon as this happens.

☐ Pickle the ring in the alum solution and rinse in cold water.

☐ With the saw or file, remove the excess silver on the base of the setting until it fits flush with the sides of the bezel, making a clean box shape.

☐ Rub the box setting with emery paper to take away the file marks and then polish using tripoli applied with a soft cloth.

☐ Turn the box upside down on the asbestos pad and hold the ring band in place where it is to be joined. Mark the spot with a pencil.

☐ Brush on the borax flux with a fine brush, covering both the flattened seam of the ring band and the area on the underside of the box setting.

☐ Place the ring flat, soldered side down, in position making sure that it is absolutely central. Place two pieces of soft solder on either side of the join (fig.4).

☐ Heat gently with the blowtorch, moving the flame around the ring and over the box until the solder runs.

☐ Remove the flame at once when this occurs. Place the ring in the pickle, rinse in cold water and polish.

If you have polished it fairly thoroughly before the final soldering, it should only be necessary to use jeweller's rouge.

Setting the stone. The box is now ready to have the stone set into it.

☐ File the top of the bezel to remove any rough edges and to make it an even height.

☐ Place the stone in the setting and, with the push-over tool, press the top of the bezel over the stone (fig.5). This is the most difficult part of making the ring so do not be impatient. It is helpful to wedge the ring against the edge of a table or shelf while working, as quite a lot of pressure is needed to actually bend the silver over. Great care must be taken not to let the push-over tool slip as it may scratch the stone.

☐ Start by pressing one small piece over then turn the ring round and do the same with the other side. Repeat this at the other ends.

☐ The stone should now be held in place at four points. Work carefully around the whole bezel until the stone is held securely.

If you have pressed around evenly there should not be too many dents. If some can be seen, take a small file and rub it gently round the top of the bezel, being careful not to scratch the stone. Polish with very fine emery paper and finish with tripoli and rouge.

This will give you a professional looking ring and knowledge of a setting technique which can be adapted to many other jewelry designs.

☐ Measure the amount of silver required for the bezel. Cut from sheet silver using tin snips or a piercing saw.

☐ Bend the ends of this piece to meet with round-nosed pliers and solder with medium solder.

☐ This makes a rough circle which can be hammered on the ring stick and then bent gently with the pliers to take the shape of the stone.

The bezel should, if it is the right size, drop over the stone without sticking yet be a close enough fit to leave no gaps.

☐ File the lower edge of the bezel so that it will sit flat on the base of the setting.

☐ Brush borax on the filed side of the bezel and the base of the setting and put them together. The base should protrude slightly around the outside of the bezel.

☐ Cut the medium solder into small pieces and place five or six segments around the protrusion on the outside of the bezel (fig.3).

☐ Heat the base and bezel with the blowtorch until it is a dull red. The

Wood grain imitation

Faux (fake) finishes have been used for quite a few centuries to enhance the appearance of walls, furniture and decorative objects. This chapter deals with the art of simulating wood grain. Later chapters include simulated bamboo, *faux marbre* (fake marble) and various imitation stone finishes.

Simulated wood graining was especially popular in 19th-century England and this was mainly the result of the

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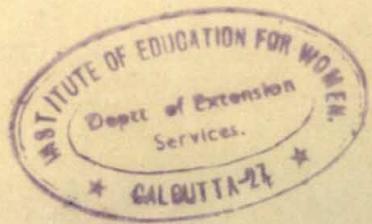
increase in population at this time and the increase in prosperity which came from the growth of trade and industry. Prosperity created a demand for furniture which could not be met in well-seasoned wood. In any case, this would probably have been too costly for the up-and-coming section of the population who created the demand.

But the Victorians did not appreciate simplicity and would not give house-room to the bare pine from which much of the furniture was made. It became necessary therefore to make simple softwood furniture look more important by disguising it as mahogany, rosewood, walnut or other more exotic timber.

Today we have a more relaxed approach to painted furniture and treat it as a form of decoration rather than emulation. It also provides a way to achieve an improbable effect using ordinary shapes—a simple pine cupboard can become an exotic piece in rosewood and marble, as the cupboard in the photograph proves. Once mastered,

Left: a simple pine cupboard is transformed by the use of paint into an exotic piece in rosewood and marble. Gold paint is used to imitate decorative hardware and gives a touch of elegance.

wood graining is a versatile decorating device.

Choosing a wood grain. It is important to decide, when attempting a simulated wood finish, what effect you are aiming at: do you want to make a faithful copy of a wood grain or do you want to decorate your furniture in an interesting and pleasing, though slightly fanciful, way? For whichever you decide upon, it is essential to make a careful study of the grain you are reproducing. Even if it is not an exact copy, it should be based on the correct form and colours or it will be meaningless.

When choosing a wood finish it is probably best to start with one of the more definite and distinctive grains such as rosewood or walnut. These are fairly wild in their natural form and give more room for expressing individuality than, for instance, mahogany. They are more luxurious than oak or elm and less readily available.

Obviously it is sensible to put in as much practice as you can before attempting work on a piece which you have prepared. It can only be by trial and error that you arrive at a final finish which is pleasing.

It is better to exaggerate the grain of a wood such as rosewood than to under-

state it. You will then be more likely to create a decorative effect even if it is not totally authentic—after all decoration is the aim. If you are too solemn in your approach you will neither enjoy the process nor, probably, the product.

Choosing a suitable surface. Start with a cheap wooden box before progressing to furniture. When graining furniture choose a piece with some style as the result will be so much more satisfying. The state of the wood surface is unimportant providing it is structurally sound—filler and paint are great disguises.

Preparing the surface

Preparation is very important and should be done thoroughly.

Painted surfaces. If the piece is already painted and has been chipped it is probably best to remove the old paint with stripper right back to the bare wood.

If the paint is in good condition, all that is needed is to clean it thoroughly with white spirit, methylated spirit or a mixture of the two. It is best to apply

Two more simulated wood grain finishes: the larger of these two boxes is painted to imitate walnut and the smaller one bird's eye maple.

this with fine steel wool and wipe off with a rag.

Any holes or deep scratches should then be filled with an indoor quality stopper, such as Brummer stopping, available from hardware and DIY shops. When set this should be rubbed down with fine glass paper or steel wool. Superficial marks or exposed wood grain are then filled with a spackle such as fine surface Polyfilla or Permoglaze Spachtel. This is rubbed down with very fine steel wool or fine wet and dry waterproof abrasive when dry. Remember that you are going to create your own grain so there should not be any visible wood grain which might compete with the one that you are going to apply.

Unpainted surfaces. Exposed wood grain should be filled with a spackle such as fine surface Polyfilla and rubbed down with very fine steel wool. The whole surface should then be primed with a primer.

The wood finish

You will need:

Oil-based undercoat in a colour which approximates the lightest tone in the wood which you are simulating (sometimes called ground colour).

Graining colour (called scumble).

(There is a range of undercoats and graining colours on the market in various wood colours, eg rosewood, or you can mix your own colours, using the chart as a guide.)

The following brushes: a fine sable brush; a badger hair, hog hair or squirrel hair softener (a softener looks rather like a flat paintbrush); graining brush (a thin, flat brush of hog bristle); good quality decorating paintbrushes. Wide-toothed comb.

Natural sponge and clean rags.

Graining medium: $\frac{1}{3}$ linseed oil, $\frac{1}{3}$ white spirit and just less than $\frac{1}{3}$ terebine liquid driers, gold size or the drying oil sold by art suppliers (any of these will speed the drying process).

Clear gloss or eggshell varnish.

Palette for mixing colours.

Note: terebine driers contain some lead (as to a lesser extent does most gold size and drying oil) so don't use this technique on children's toys etc.

☐ Give the wood one or two coats of undercoat. Allow paint to dry.

☐ Mix the graining medium and apply a thin coat to the surface with a decorating brush. Wipe off the surplus with a rag.

Chart for mixing undercoats and graining colours. This is just a guide: there can be no hard and fast rule when mixing these colours. The proportions of oil colours to undercoat varies depending on the exact colour required. The same applies when mixing graining colours.

☐ Mix a little graining colour with some medium and with a small decorating brush dab it at random over the moistened surface.

☐ With a larger brush spread this colour in the direction the grain will take.

☐ With the tip of the softener or a soft-haired paintbrush, flog or stipple the surface to create pore marks. Allow to dry overnight.

☐ Using a brush, mix the graining colour on a palette with the medium. Moisten graining brush with medium and shake out or wipe off surplus on newspaper. (This helps the brush to 'form' and to absorb the graining colour more easily.) Then drag the brush through colour on palette.

☐ Next, separate the bristles by pulling the brush through the comb.

☐ Holding the brush in the way shown in the photograph, paint on the grain. When painting a panel remember that the width and closeness of the lines vary in the natural state according to the section of the tree.

Note: In some woods the formation is clear and precise, while in others the lines may be wavy, irregular or even broken. If a wet brush is used then the lines will flow into each other and with a drier one they will be more precise.

☐ Drag the dry badger softener up and down and across the grain, before it becomes dry, with a feather-light flick. This softens and extends the colour to give a more realistic effect. (The softener will pick up graining colour as you work—wipe it on a rag from time to time to keep it dry.)

Knots can be simulated by dipping a rag into the graining colour and applying, with the rag over a finger, in a swirling motion.

Highlights. Use a piece of natural sponge to wipe out any highlights (the lighter areas of the wood where the grain is not too pronounced). The sponge is just right for lifting off the surplus colour and in doing so the sponge can be used to create delicate texture.

Additional glazes. When dry, more glazes of medium and graining colour can be applied in the same way as the first application to modulate the tones, to give added emphasis to the darker areas and also to put in the fine lines and detail.

A fine grain, such as that found in rosewood, for example, can be drawn in with a sable brush.

Varnishing. When the work is finally dry, varnish with clear gloss or eggshell varnish.

Polishing. When the varnish is dry it is very effective to wax over it with a dark wax polish. This also protects the surface. Do not be too assiduous in rubbing off the wax.

Chart for mixing undercoat and graining colours

Wood	Undercoat (or ground)	Composition of undercoat	Composition of graining colour
Rosewood	Orange-red buff	Orange oil-based undercoat; ochre, white and Venetian red artist's oil colour	Crimson lake, Vandyke brown, touch of black artist's oil colour
Mahogany	Rich buff	Orange oil-based undercoat; Venetian red, orange chrome and ochre artist's oil colour	Vandyke brown artist's oil colour
Walnut	Cool buff	White oil-based undercoat; burnt umber and Venetian red artist's oil colour	Burnt umber, touch of Prussian blue artist's oil colour
Light oak	Light buff	White oil-based undercoat; raw umber and ochre artist's oil colour	Raw umber artist's oil colour
Dark oak	Dark buff	White oil-based undercoat; ochre and burnt umber artist's oil colour (for warmer ground add Venetian red)	Burnt umber and touch of black artist's oil colour

The first thin coat of graining colour mixed with medium is flogged while still wet with the edge of the softener to create pore marks. This is then left to dry overnight.

The bristles of the graining brush are separated by pulling the brush through a wide-toothed comb before beginning to draw in the grain.

Painting on the grain. In this rosewood panel the centre section is not grained at this stage—the fine grain is drawn in on it later.

Before the work becomes dry, the grain is softened by dragging the dry softener up and down and across the grain with a feather-light flick. The paint is then left to dry.
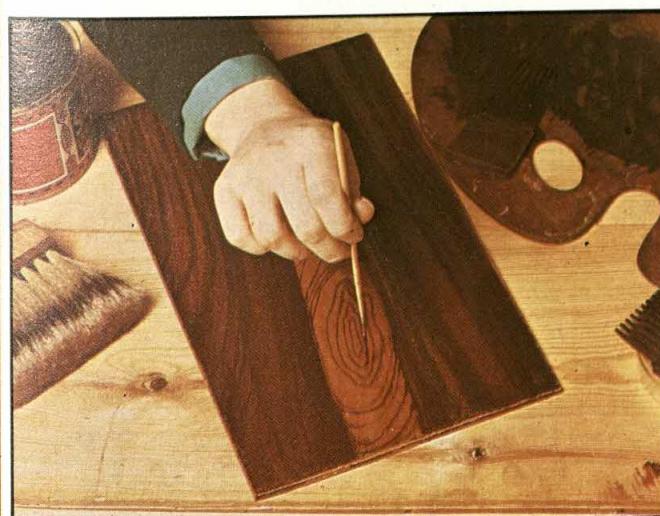

The fine grain on rosewood is drawn in with a fine sable hair brush held upright. This is best used on a dry surface or the lines might spread.

The fine grain is softened by flicking the softener up and down only. This must be done very lightly and carefully or the delicate lines will be smudged.

Melvin Grey

A

B

C

E
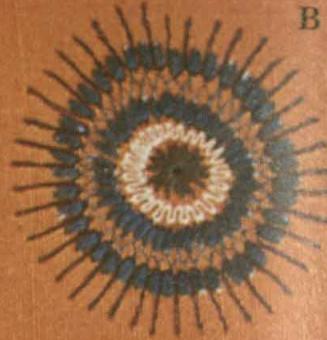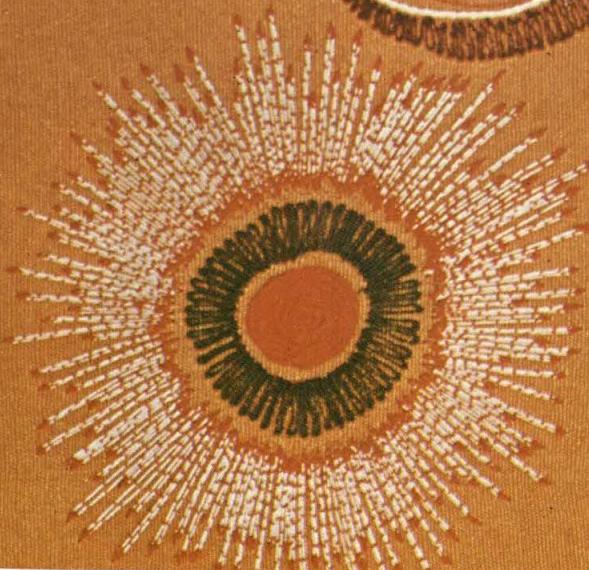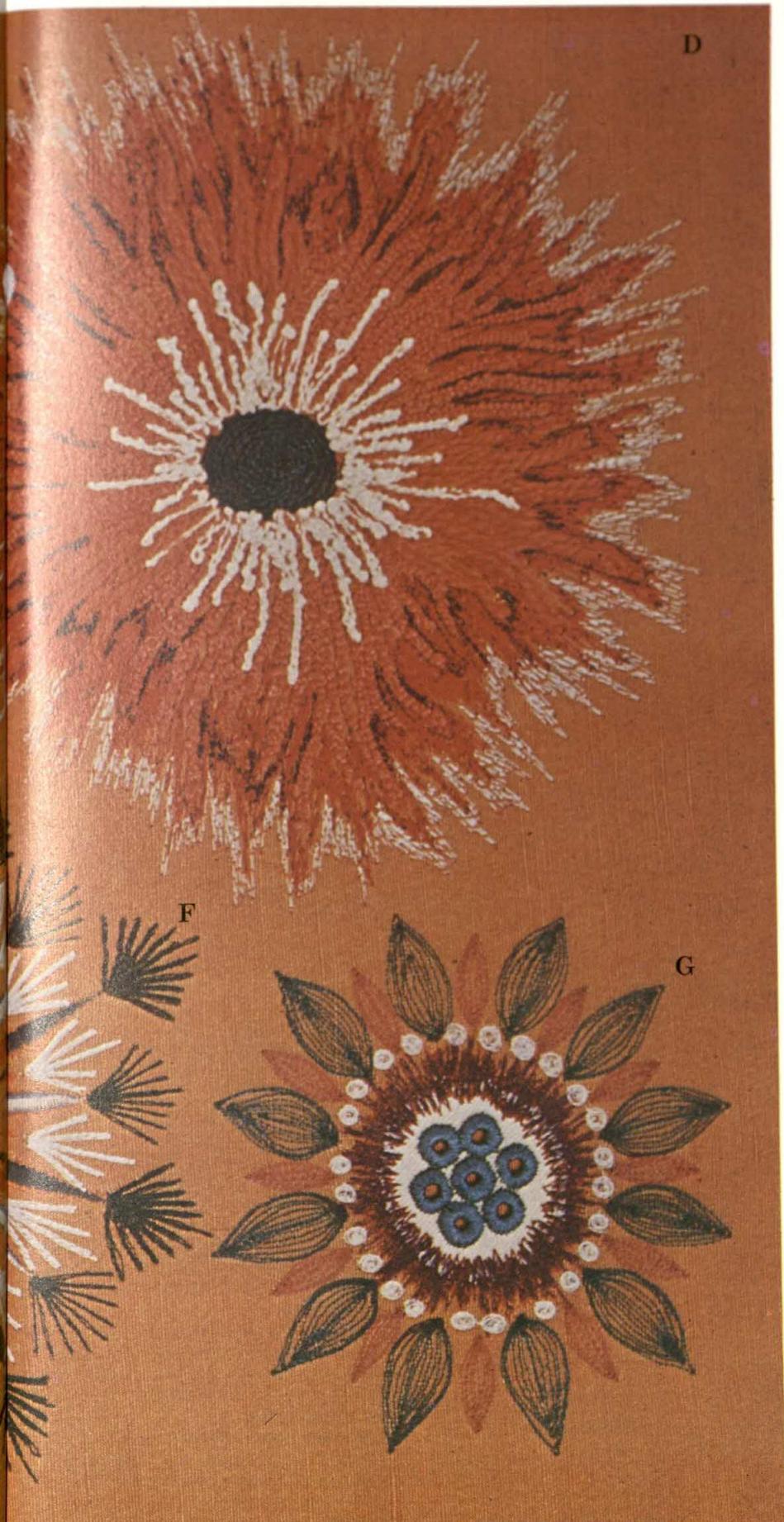
Machine embroidery is not just the application on cloth of the decorative patterns supplied on an expensive automatic sewing machine. Some form of embroidery can be worked on any type of machine and even the simplest straight stitch machine has the potential to produce attractive and decorative results.

Machine embroidery was first used industrially as a means of producing the effect of hand embroidery quickly, easily and cheaply. In recent years, however, effects which are not copies of hand stitching have been developed and machine embroidery has become a craft in its own right.

There are five main categories of machine embroidery: the automatic pattern stitching which is described in this chapter; straight stitching with the presser foot on the machine; free stitching with the presser foot off the machine; open work (such as eyelets and drawn thread); and appliqué. These last four methods are described in later chapters.

Before beginning machine embroidery of any kind, however, it is important to be familiar with the equipment, fabrics and thread which are suited to the craft in general.

Equipment

The sewing machine is obviously the most important piece of equipment. Whichever type of sewing machine you use, it is essential that it is in perfect working order because it will receive far more wear during embroidery than dressmaking.

The machine must be cleaned and oiled regularly. It is better to oil before use rather than after because fine oil tends to evaporate. Run the threaded machine over a spare piece of fabric before starting your work to remove the excess oil.

Check the foot controls and motors occasionally for overheating and if this occurs have your machine serviced.

Bobbins. If you intend to do a lot of machine embroidery it is worth buying some bobbins which you keep for embroidery threads. On machines which have a bobbin case, it is also worth buying an extra case which you keep for thicker threads so that the tension is correctly adjusted for these.

Wall panel designed by Joy Clucas showing some of the embroidery possible on a domestic swing-needle sewing machine. **A.** *Free running stitch with feather stitch centre and moss stitch.* **B.** *Free running stitch with satin stitch.* **C** *and* **G.** *Free running stitch with eyelets.* **D.** *Cable stitch with applied yarn.* **E.** *Whip stitch with applied yarn centre.* **F.** *Satin stitch worked with presser foot and free running stitch.*

Needles. You can use the same needles you use for dressmaking—normally size 14 (90 continental)—although you should have several spares as you may break one or two during practice. Check regularly that the point of the needle is sharp—blunt needles do not stitch correctly.

Drop feed plate. The feed dog on the machine has to be below the level of the throat plate when working free embroidery.

On some machines this can be done automatically by pressing a knob while on others you will require a special plate which is fitted over the feed, so you should refer to your instruction book to find which type of machine yours is.

On old machines where it may not be possible to buy a plate, you can improvise by removing the throat plate and inserting small metal washers under it before replacing the screws. This raises the throat plate to the level of the teeth at their highest point.

Frames. For free embroidery the fabric should be mounted on to a circular embroidery frame in order to keep it at tension and form the stitches correctly. The frame can be a plastic hoop made for machine embroidery or an ordinary hand embroidery hoop (see Embroidery chapter 1, page 260), but it should be shallow enough to pass easily underneath the raised machine needle. A medium-sized frame of 20cm-25cm (8″-9″) diameter is suitable for most items although other sizes are also useful.

Fabrics

Most fabrics are suitable for machine embroidery provided they are firmly woven. Good fabrics for beginners to use are sailcloth or dress-weight linens. When you are more experienced you could try net and fine fabrics, such as cotton organdie. Fabrics to be avoided are knitted jersey and crepe.

Threads

All kinds of sewing threads can be used for machine embroidery, from the traditional mercerized sewing cotton normally used for dressmaking to the pearl cottons and lurex threads used for hand embroidery.

Special machine embroidery cotton is supplied in two thicknesses, 50 and 30. The 50 is the finer of the two and is a good thread to use in the bobbin (unless a thicker thread is needed for a special effect) because it is very smooth, economical in use and does not jam easily.

The 30 embroidery thread is comparable to ordinary machine thread but it is smoother and more lustrous.

Invisible thread is invaluable to the more experienced machine embroiderer.

Melvin Grey

Tulip motifs embroidered with a variety of automatic pattern stitches by Joy Clucas. Although automatic patterns vary according to machine, the motifs could be copied to decorate table linen or clothing.

It is available in light and dark tones and is useful for sewing on appliqué where an exact colour match cannot be made. It gives a rich glint to the work when used for free embroidery and is best used here with machine embroidery thread in the bobbin, partly to provide colour and interest and partly because invisible thread should not be pressed with a hot iron (the work can be pressed from the wrong side).

Automatic patterns

Automatic pattern stitching is the easiest form of machine embroidery but it can only be worked on sophisticated sewing machines made for the purpose.

Automatic patterns are a development in more elaborate modern machines on the zigzag stitch produced by swing-needle machines. Fully automatic machines can be programmed—usually by inserting special discs or by turning a knob or lever—to produce a succession of stitches of various widths which build up into a pattern of about 2cm (⅝″) long.

The patterns vary according to the brand and sophistication of the machine and examples are shown above. Many machines make patterns based on the side-to-side throw of the needle only, but some combine this with a backwards and forwards motion of the feed, thus making a much wider range of patterns available.

Once the machine has been set for the particular pattern required, the fabric is fed through in the same way as for normal sewing.

Uses. Automatic patterns can be used for a wide variety of interesting designs on clothes and furnishings. They can also be used to good effect with applied pieces of fabric, braid or ribbon, for border patterns, decorative motifs for casual wear, children's clothes and to give the most ordinary household linens a luxurious finish.

They must, however, be used selectively—if too many patterns are combined in one design the result can be confused and unattractive.

Using the presser foot. Automatic pattern stitching is normally worked with the presser foot in the usual way. When worked freely (without presser foot and with fabric mounted on frame) the patterns completely lose their effect unless you have acquired the skill of moving the frame smoothly with your left hand while operating the stitch level with your right hand. This will come with practice and free machine embroidery is described more fully in a later chapter.

Threads. The stitching can be done with 30 or 50 machine embroidery cotton or you could use a thicker thread, such as buttonhole twist, to give a bolder effect.

To prevent these thicker threads from fraying, it is essential that the needle is large enough for the thread to pass easily down the groove on the side of the shank and through the eye. If a

tension threads, but swing needle work tends to pull up the fabric more than straight stitching. To counteract this, the upper tension should be slackened as much as possible without affecting the even appearance of the stitching. The lower tension may also be loosened. On machines with a bobbin case, try to memorize the pull of the thread and the position of the screw groove in relation to its socket before you alter it. In this way the tension may be easily reset for normal sewing. When using the presser foot always test the stitch on an offcut of the fabric you intend to use before you begin your design. You can then see how to adjust the stitch length or width to give the desired stitch density according to the thickness of thread. You will also be able to see if the fabric requires backing to prevent it from pulling up when the needle swings or to prevent it from stretching when machining on the bias. Special backing is not necessary when the work is framed.

Backing the fabric. The finer the fabric the more important it is to back it if fabric is not framed. The best backing is vanishing muslin, a stiff loosely woven fabric, which turns brown and disintegrates when ironed after stitching. Alternatively you could use medium-weight paper or, if permanent stiffness is required, you could use a bonded interfacing. Tack the fabric firmly to whichever backing you use.

Designs

Automatic pattern embroidery need not be limited to straight lines of stitching along the straight grain of the fabric. It is not difficult to follow gently curving lines, using your right hand to open and close the stitch width lever to give further variety. It is essential to practise and experiment on spare fabric before you commit yourself to an elaborate design.

Start and finish lines of stitching by taking the threads through to the wrong side and knotting them firmly—do not reverse stitch because you will spoil the effect of the pattern.

Transferring designs. The outlines of shapes to be worked in automatic pattern stitching can be marked on the fabric using one of the methods described in Embroidery chapter 1, page 260.

Alternatively, if you are backing your fabric with paper, you could draw the outlines on this and tack along them through both thicknesses with the wrong side of fabric facing up. When the fabric is placed in the machine these tacking stitches will show on the right side. Use tacking thread in a colour which will not show through the finished embroidery in case you do not manage to pull it out completely.

very thick thread, such as pearl cotton, is used it should be put on to the bobbin and the embroidery worked with the wrong side facing up—this technique is also described in a later chapter.

Patterns can be made even more interesting if shaded threads are used. Alternatively, you could try using different coloured threads above and below, tightening the upper tension or loosening the bobbin tension to give

Sun top designed by Elna worked with shirring elastic in the bobbin and automatic blind stitch (three straight stitches and one zigzag) to couch two strands of coloured thread on the right side of the fabric.

the stitch specks of the colour used in the bobbin.

Tension. Some degree of tension is essential on both the upper and lower

Interior design: adding texture and pattern

Pattern and texture can be used to add interest to a room. A room with all smooth materials in plain colours would look rather monotonous, but add a patterned rug or a rough, loose weave curtain and the room begins to look more interesting.

Texture

There are several points to note about textured materials before deciding how to use them. Smooth surfaces reflect light and the colours will be clear and bright. Rough textured surfaces absorb some of the light and the colours look softer and deeper. Some materials such as velvet can both reflect and absorb light depending on the light source.

Many different textured materials and fabrics are available for floors, walls, curtains and covers.

Walls can be left smooth and painted with matt, silk finish, or gloss paint. They can also be covered with a variety of materials: smooth or textured wallpaper, cork tiles, wood panelling, hessian or other fabric; they could even be hung with carpets or other wall hangings. Alternatively they could be stripped to expose natural brick, or given a textured plaster finish.

Floors. Wood floors can be sanded down to reveal the natural colour and texture of floorboards. Brick or stone floors can be left bare and partially covered with mats or rugs. Alternatively, a floor can be covered with a variety of different materials: vinyl, ceramic or cork tiles, carpet of different types—velvet, shag or twist pile—rush or coconut matting.

Fabrics for curtains, upholstery, loose covers, bedspreads, cushions etc come in a seemingly endless selection of textures in both natural and man-made fibres.

Pattern

Pattern also plays a very important part—whether as a small area of bold pattern to liven up a room with predominantly plain colours, or dominating the room as an over-all pattern on matching curtains and wallpaper.

Using a lot of different patterns in a room may prove an expensive mistake. It is safer to use only small areas of very bold pattern, and if you want to cover a large area with a patterned material, go for softer colours and a less obvious design. Don't use two different patterns in a room unless you feel very confident that they will go together well. More than one pattern can be used together successfully but must be chosen very carefully.

Pattern can be used as a means of tying two different colours together. A blue carpet and green curtains could be made to look as if they 'belong' together by introducing a patterned material which incorporates both the blue and the green (fig.1).

Pattern can also be used to create illusion—a vertical stripe wallpaper will give the impression of a high ceiling whereas a horizontal stripe will do the opposite. Any sort of pattern on a ceiling will make the ceiling seem lower.

1. *An apparently random choice of colour for curtains and carpets can be made to look 'right' by the addition of a patterned material which incorporates both colours.*

Diana Atteridge
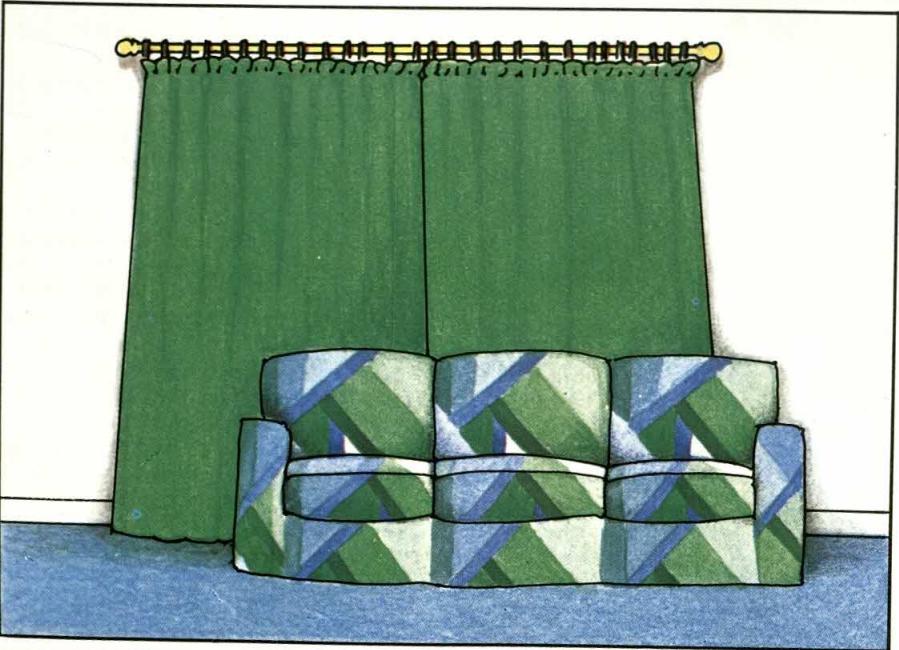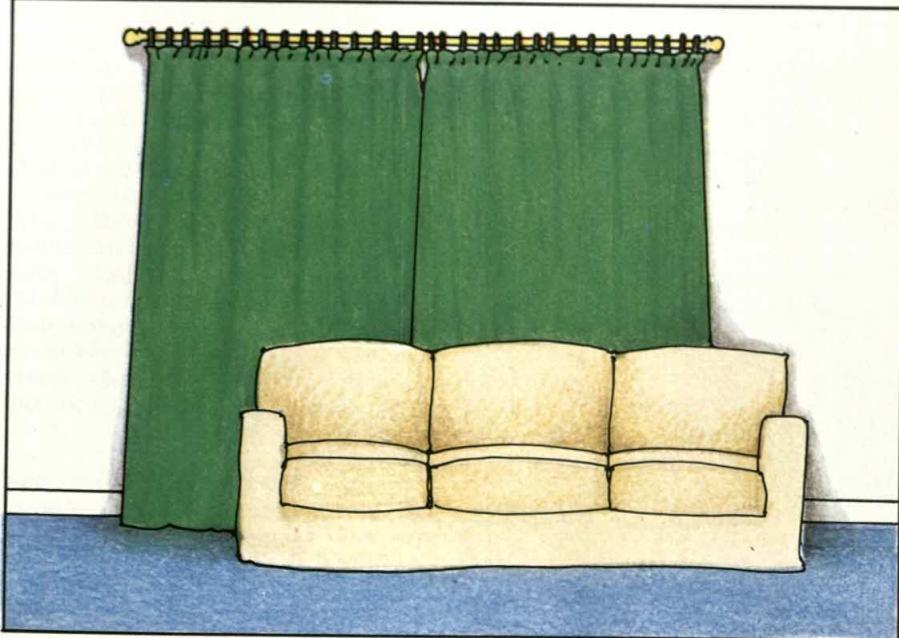
Liz Whiting

Play mattress

Make this play mattress which will conveniently fold away when not needed.

You will need:

Three pieces of foam rubber 70cm x 64cm x 7cm (27½"x 25"x 3"). Alternatively, just divide one full-length piece of mattress foam into three with a sharp knife.

Sheeting or similar fabric cut into: six pieces 73cm x 67cm (28¾"x 26¼") for top and bottom of covers; six welts 73cm x 10cm (28¾"x 4½"); six welts 67cm x 10cm (26¼"x 4½").

Selection of ribbons or non-fraying fabrics, such as felt, for appliqué trim. Use natural fibre fabric for head on which the face is painted with dyes.

Three matching pieces of dress fabric: one of 73cm x 95cm (28¾" 37") and two of 80cm x 40cm (31½"x 15¾") for dress and arms, respectively.

Yarn for hair. About 2.5m (2⅓yd) of 1.3cm (½") lace.

Stuffing for arms.

Fabric paste dyes.

Fabric adhesive such as Copydex.

Newspaper (optional).

Note: A 1.5cm (⅝") seam allowance is included in all cutting measurements.

Cut dress fabric into two lengths of 67cm (26¼") and 28cm (10¾"). The latter piece makes the skirt.

Attach dress fabric pieces to two sheeting tops—turning under a small hem at lower edge of second piece (see photograph).

Following fig.1, cut out pattern pieces from appliqué fabrics—using natural fibre fabric for face. Or, cut out shapes in newspaper first. Using dyes, paint in lips and eyes (see Paint chapter 5, page 744). Stitch eyelashes, appliqué cheeks and remaining shapes on to the three sheeting tops (see Appliqué chapter 1, page 320). Trim with lace.

Attach hair with fabric adhesive.

To make arms cut out hand shapes from fabric folded double allowing 1.5cm (⅝") for seams.

With right sides together sew hand to wrist edge of sleeve, sew down length of arm and round hand shape. Turn arm right side out. Complete second arm to match, fill arm with stuffing. Place top edge of each arm at top of body section between dress front and side welt. Sew up seam with right sides together.

A comfortable companion for afternoon naps or for playing on.

70cm (27½")
18.5cm (7¼")
77cm (30¼")
64cm (25")
15cm (6")
64cm (25")
23.7cm (9¼")
64cm (25")

Coral Mula
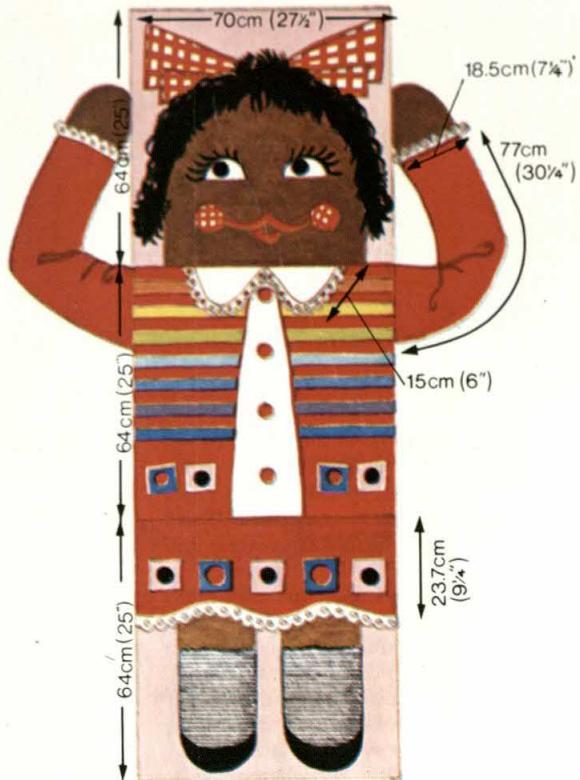
1. *Try cutting out the appliqué shapes from newspaper first.*

With right sides together sew remaining welts to sheeting pieces, leaving one end open on each cover. Turn right side out. Insert foam pieces into covers. Neatly hand sew open gussets together and likewise the three mattress sections, along top edges only.

Making paper picture frames

This frame, both sturdy and colourful, is suitable for a child's room.

Picture frames made of card and paper have more limited applications than wooden or metal ones but in the right circumstances they can be very durable, as well as being attractive, inexpensive, and relatively easy to make. The best ways to use such frames are as free-standing units or in less usual forms such as tubes used in conjunction with other pieces of card. These frames are not ideally suited for wall mounting because card, unless very thick or of several laminations, always tends to warp with time. Difficulties are also encountered when fixing card frames to a wall, since the usual fittings for conventional frames obviously cannot be used and one is often left with no alternative but to hammer pins in at various points around the perimeter of the frame itself—not a very satisfactory solution.

Child's frame

A simple and colourful way to brighten up a child's room is to display a picture in a paper frame slotted into a sturdy base made from cardboard cylinders. The picture you use could be cut from a magazine, a particularly attractive greetings card, or even a piece of wrapping paper with a suitably colourful and humorous subject.

The frame shown in the photograph is composed of two layers of paper in contrasting colours but you can make it with more than this number or with just one. The shape of the frame follows the outline of the tubes forming the base, with a contrasting curve at each side of the top of the frame. Of course you can devise other shapes; the method of construction will be the same.

You will need:

A picture to be framed. (Bear in mind that it will lose about 5cm (2") all round when framed.)

A piece of stiff card the size of the picture, for the backing board.

Two sheets of paper or thin card in contrasting colours, for the borders. Each sheet must be at least as large as the stiff card.

An average-sized tube made of fairly stiff cardboard, about 5cm (2") in diameter and between 25cm and 30cm (10" and 12") long.

Enamel or similar hard-wearing paints, and paintbrush.

A sheet of tracing paper larger than the stiff card.

Round shapes such as paint cans, plates, cups etc. If, as in the example given, the frame comprises more than one layer of paper or thin card, choose objects which increase in size so that curves at each corner are concentric.

Rubber-based glue such as Cow Gum.

Set square or protractor.

Craft knife or scalpel.

Ruler, pencil.

1. *Below: method of assembly for child's frame.* 2. *Sliding the assembled frame into the cylindrical base.*
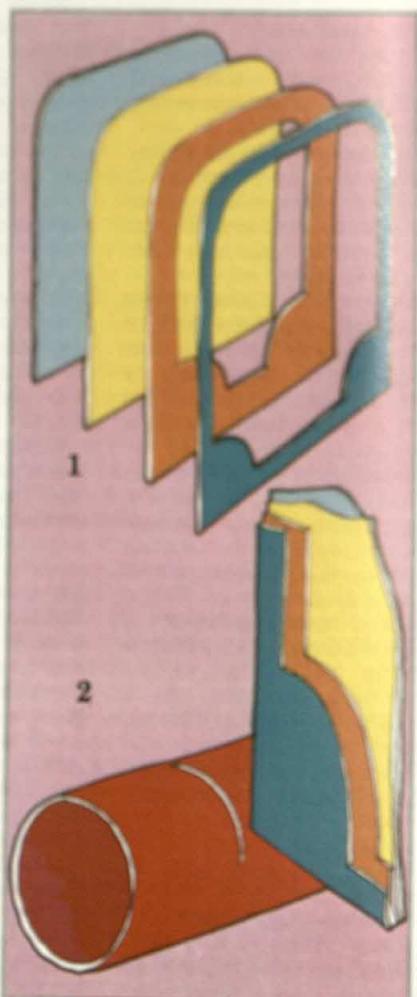
□ Cut the tube into two equal lengths. Paint each one with enamel or similar paints and stand them upright to dry thoroughly.

□ Glue the picture to the stiff card. (Fig 1 shows the card as pale blue, the picture as yellow, and the two parts of the frame as orange and blue. Do not draw the curves at this stage.) Leave to dry.

□ Lay the sheet of tracing paper over the picture and with a pencil make a border by drawing parallel lines 2cm (1") apart on each side to frame the area you want displayed. The basic shape of the frame (without curves) is either square or rectangular, so check, using the set square or protractor, that all corners have a 90° angle. At this stage do not trim the card to finished size around the print, but wait until the whole frame has been completed.

□ Place the tracing paper over the wrong side of a sheet of coloured paper or thin card and trace the shape on to it. This becomes the inner layer of the frame.

□ Using any suitable round shape, draw the curves in their positions on this layer of the frame. Make sure that the shape used here is larger than the second one which is used for the outer layer of the frame.

□ For the outer layer of the frame (the blue one in fig.1 and in the photograph), follow the same method as that for the inner layer but make it 2cm (1") narrower all round and use a slightly smaller round object for the lower curves, a larger one for the curves at the top.

□ Having drawn the two parts of the frame, cut out the two pieces of paper or thin card with the craft knife or scalpel, using the ruler for the straight lines and the objects used to cut round the curves.

□ Glue the two parts of the frame together. According to the assembly shown in fig.1, note that the outer layer (blue) is placed over the inner layer (orange).

□ Glue the frame over the picture and stiff card. Trim the stiff card with the craft knife or scalpel to the shape of the frame.

□ Cut out a slice from each piece of tube, half way along and across about a quarter of its diameter (fig.2) and slide the lower corners of the frame into each slit.

The frame is now complete and ready to be displayed on any flat surface.

Poster frame

Cardboard tubes can also be used to display posters or large pictures and help to protect the corners of the picture. Posters stuck directly on to a wall tend to wrinkle and come unstuck

The ends of the frame round this poster are held rigid by cardboard tubes.

2. Method of assembly for poster frame. Note the way the tubes are split to grip the poster and frame firmly.
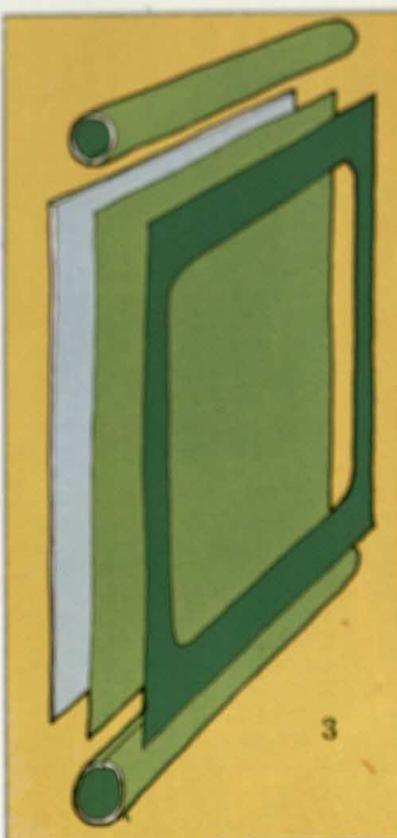
after a time, and this method of display provides an attractive and imaginative solution to these problems.

You will need:
Poster to be framed.
A cardboard tube about 3-4cm (1½"-1¾") diameter, and its length twice the width of the frame.
Stiff paper or card the size of the poster or larger.
Coloured paper the size of the card for the border (optional).
Tracing paper at least as large as the poster (if making a border).
Enamel or similar hard wearing paints, paintbrush.
Small tins or bottles (if making a border) for the curves.
Rubber-based adhesive such as Cow Gum.
Pencil, ruler.
Sharp craft knife or scalpel.
Set square or protractor.
A length of coloured string twice the width of the poster plus about 8cm (3½").
Nail or picture hook on a wall.

□ Cut the cardboard tube into two equal lengths. Then carefully cut the tubes along one side down their entire length with knife or scalpel. Paint with enamels or similar paints and leave to dry.

□ Glue the poster to the stiff paper or card, using Cow Gum or similar glue.

□ The diagram (fig.3) shows a border (dark green) which frames the poster (light green) but the feasibility of having a border depends on the poster's size and the size of coloured paper available. The backing is blue (fig.3). If the picture has a border printed round it, it is of course not necessary to make one. However, if the poster needs a border and is small enough to be covered by a single sheet of paper, draw out a frame in the same way as for the child's frame, using tracing paper, small tins or bottles for the curves and a ruler for the straight edges. Use a set square or protractor to make sure that all the corners have a 90° angle.

□ Cut out the centre of the frame with a craft knife or scalpel.

□ Apply glue to the back of the frame, position it over the picture (see fig.3) and stick down.

□ When the glue is dry trim the edges, making sure that the outer edge of the frame is parallel with its corresponding inner edge.

□ Slide the top and bottom of the assembled picture and frame into the slits in the tubes. The tubes should grip the paper so gluing them is not necessary.

□ Thread the coloured string through the top tube, tie the ends and hang the poster by the string on a nail or picture hook.

Framing a photograph

The framed photograph shown here illustrates a simple way to show off family and other photographs.

You will need:

Photograph to be framed.

Two pieces of cardboard, each the size of the photograph plus an extra 1.25cm (½″) all round. These two pieces become the backing board for the photograph and the frame support.

Two sheets of stiffish coloured paper, preferably of a neutral tone. Each sheet should be the length and twice the width of one board plus about 2.5cm (1″) all round.

Rubber-based adhesive such as Cow Gum.

Ruler, pencil, scalpel.

Set square or protractor.

☐ Take one sheet of paper and place it face down on a flat surface.

4. Below: glue boards to first sheet of paper. 5. Cut parallel slits at corners. 6. Glue second sheet (with slits) to boards.
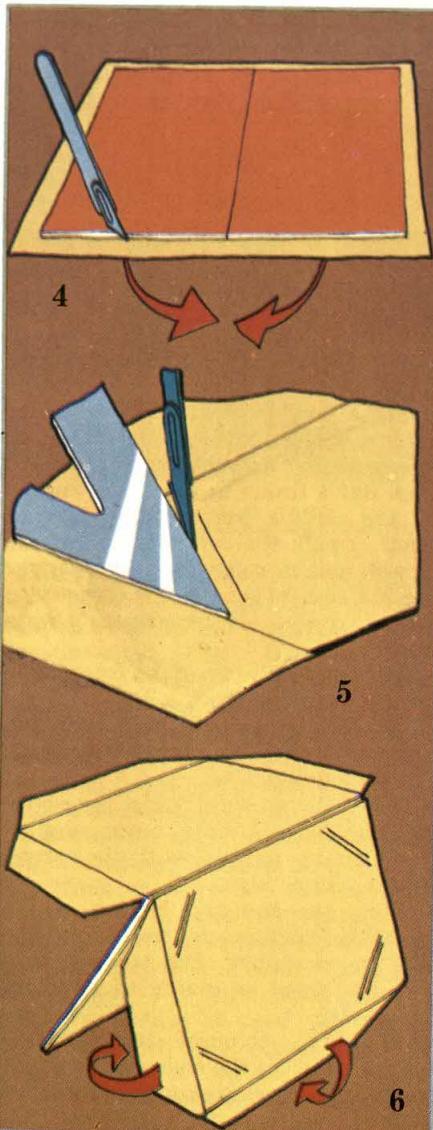
Above: family photograph is held in simple frame by the slits at each corner.

☐ Apply glue to one side of each piece of board and position the boards, glue side down, side by side on the paper, with their long edges touching (fig.4).

☐ When the glue is dry, trim the paper to the edge of the cardboard with the scalpel and fold the pieces of board in the direction of the arrows (see fig.4), so that the paper acts as a hinge.

☐ With a pencil, draw the outline of the joined boards on the second sheet of coloured paper, but do not cut round the outline. An allowance of paper will be needed to fold over board sides.

☐ Fold this sheet of paper in half across its width. Using a set square or protractor and a scalpel, cut two parallel slits about 3mm (⅛″) apart in each corner of one of the halves, at 45° to the edges (fig.5). Make ends of slits 1.25cm (½″) from the board edges.

☐ Cut corners of paper at 45° angles as shown (fig.6).

☐ With the fold level with the hinged edges of the boards, carefully glue the half of the paper with the slits (right side up) to one of the boards, making sure that no glue goes beneath the slitted areas (fig.6). These slits will hold the photograph in place.

☐ Cut, fold and glue the edges of the paper round the back of the board, in the direction of the arrows (see fig.6).

☐ Fold the remaining half of the paper and glue it to the second board (the frame support), folding and gluing the edges in the same way as for the first board.

☐ Insert your photograph so that each corner is held beneath one of the slit portions of the paper, as in the photograph.

A traditional frame

A traditional type of frame with a triangular support can be used to display a classical picture which looks best with a window mount.

You will need:

Picture to be mounted.

Four pieces of thick card or mounting board, each with identical external measurements, about 10cm (4″) wider and 12cm (5″) longer than the picture to be mounted (though these measurements will depend to a large extent on the size of the picture itself. The print shown is about 12cm x 7cm (5″x 3″).

A piece of thick card in the shape of a right-angled triangle, its long edge about 5cm (2″) shorter than the length of each card rectangle.

Thin coloured paper the size of the picture plus about 2.5cm (1″) at top and sides and 5cm (2″) at the bottom. This will act as the window mount.

Matt black paint and paintbrush.

Textured paper to cover the outer part of the frame, the back of the frame and the triangular support.

Rubber-based adhesive such as Cow Gum.

Pencil, ruler, scalpel.

Set square or protractor.

☐ Cut the four pieces of mounting board as in fig.7. First cut a semi-circle from the top edge of the first piece (light blue) which is the back of the frame.

□ Cut out a rectangle from the second piece (pink) leaving a U-shaped frame about 2cm (¾") wide all round. Set aside the inner rectangle; this will be used as the backing board for the picture itself.

□ Using pencil, ruler and scalpel, draw and cut a central rectangle from the third piece of board (red) so that you have a frame about 2.5cm (1") wide all round. Use the set square or protractor to ensure that all corners have a 90° angle.

□ Cut out a central rectangle from the fourth piece of mounting board (yellow) in the manner described for the red piece but 2-3mm (⅛") narrower.

□ Glue each layer of board in turn in the order pink to pale blue, red to pink, and yellow to red (fig.8). Do not glue the support at this stage.

□ Take the rectangle cut from the pink piece and with the scalpel cut a semi-circle at the top to align with that light blue piece (see fig.7).

□ Glue the picture to be displayed on this rectangle which becomes the

Right: the frame for this picture incorporates a mount. Below: 7. Cut four pieces of board. 8. Assemble frame. 9. Assemble mount. 10. Completed frame.
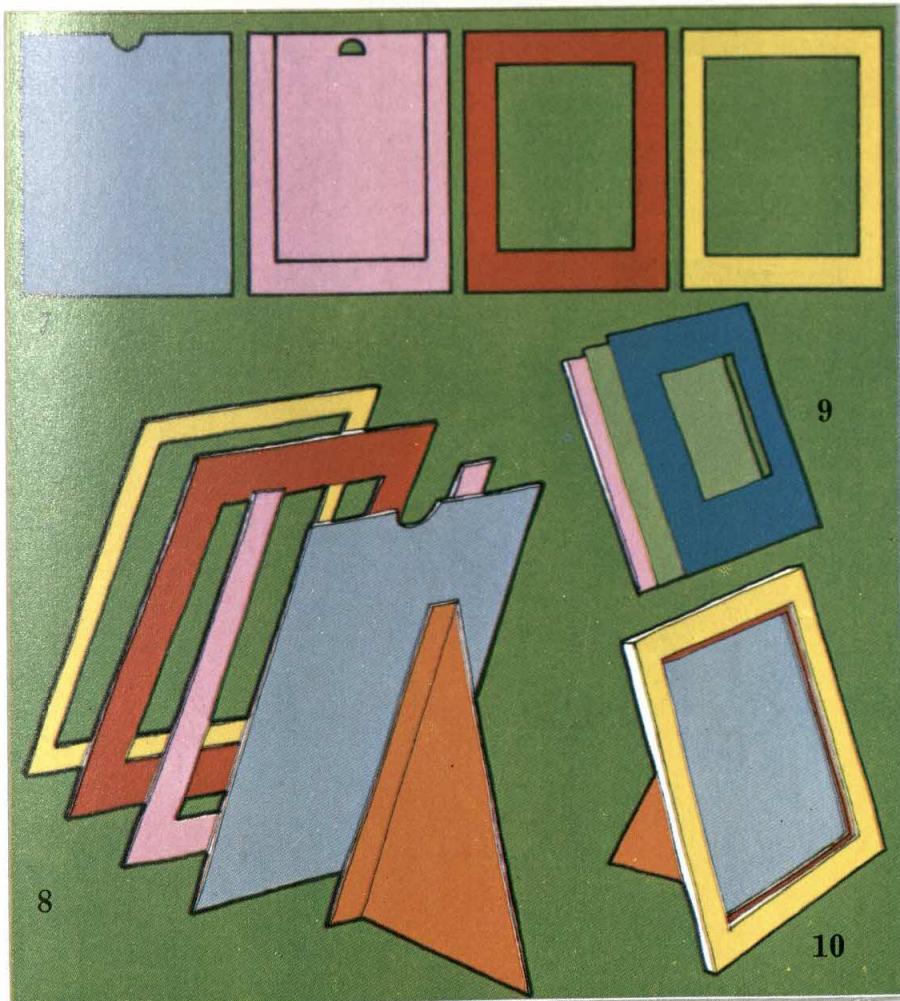
backing board. (In this case the picture is placed 5.7cm (2¼") from the bottom edge of the board, 3cm (1¼") from the side edges, and 2" (5cm) from the top.)

□ Take the sheet of thin coloured paper (dark blue in fig.9) and cut out a hole the size of the picture. This mount window should have a border of 2.5cm (1") at the top and sides and 5cm (2") at the bottom. Glue in position over the picture (green) and backing board (pink) (see fig.9). (For more information on picture mounting, see Paper chapter 47, page 1822).

□ When the glue between the layers of mounting board is dry, paint the inner edges of the red and yellow layers matt black.

□ When the paint is dry, cover the front of the topmost piece (yellow) and the whole of the back of the frame with textured paper, gluing it in position. Cover the triangular support with some more of the same paper and glue it down.

□ Bend back the edge of the triangle which is to be the frame support, trimming the top and bottom edges (see fig.8), and glue it to the back of the frame, aligning the bases. When dry the assembled frame should stand upright, leaning backwards slightly (fig.10).

□ Slide the backing board with the picture and mount window into the frame between the red and light blue pieces of board, and the frame is complete.

Straight stitch machine work

Straight stitching with the presser foot is the simplest form of machine embroidery, and can be worked with any type of sewing machine.

The stitch, which is the same one used for dressmaking, is the equivalent of the double running and back stitches used in hand embroidery. Its scope, however, is more limited because of restricted manoeuvrability of the fabric in the machine.

Designs, therefore, are limited to straight lines, angles and gentle curves, preferably continuous to save darning in ends. They can be made attractive and more interesting by the use of textured threads, such as pearl cotton and lurex, possibly combined with the application of thicker yarns. While decorative straight stitching with the presser foot closely resembles the use of the machine in regular dressmaking there is an essential difference in that most of the stitching in dressmaking is safely hidden inside the garment, whereas in embroidery all the stitches are on display.

The formation of the stitches, therefore, and the relative tensions of the top and bottom threads, as well as the shapes being worked, are important.

From your dressmaking experience, you may already know that the strongest machine stitch is formed when the threads from the top and bottom are evenly locked as they are formed on the fabric (fig.1). With embroidery, where strength is not as important as the decorative effect, the tension of either the top or the bottom thread is sometimes deliberately loosened or tightened for effect, both in straight and zigzag stitching.

When the top thread is tightened it lies flat on the fabric and the bottom thread is pulled up so that it loops over it (fig.2). This is whip stitch, which is described in a later chapter.

The method of changing the tensions of the two threads varies according to the make of machine—your instruction manual will give you details.

Practising. It is essential to be able to alter both tensions easily so that you can obtain the desired effect. You should also be able to stitch a perfectly straight line or a curved line and to start and stop stitching at an exact point—all of which requires practice.

☐ Thread the machine with ordinary sewing thread, using a different colour on top from the bobbin thread. Check that your needle is sharp and that it is the recommended size for the thread.

☐ On a spare piece of cotton fabric work a short line of straight stitching. Cut the threads and withdraw the fabric so that you can examine the stitching from both sides of the fabric.

☐ If the tensions of the threads are not balanced, adjust the one which appears tighter and work another line of stitching. Keep adjusting the tension until you produce a perfect line.

☐ If, in spite of several attempts you cannot get the tensions balanced, check that you have threaded the machine correctly and that your needle is sharp and not bent. If the trouble persists and your instruction manual does not offer a solution, have the machine checked professionally.

When the bottom thread is tighter than the top thread, it is the bottom thread which lies flat on the fabric and the top thread which loops over it (fig.3). When worked with the wrong side of the fabric facing up, this forms cable stitch, described later in the chapter.

☐ When you have produced a line of stitching with the threads at equal tensions, try stitching lines first with the top thread tighter than the bottom thread and then with loose tension on top and tight bottom thread. If you have a swing-needle machine, try the different tensions in zigzag stitch.

☐ Return the bobbin tension to normal and check that you are again forming a perfect stitch. If your machine has a separate bobbin case, try to memorize the feeling of tension on the thread as you pull it from the bobbin case in comparison with the other tensions. If the tension is adjusted by a screw on the side of the bobbin case, make a note of the angle of the screw slot.

☐ To practise stitching straight lines, draw some lines lightly on the fabric in pencil and work along them. When you are satisfied, try stitching a line from one dot to another dot placed 10cm (4″) and then 15cm (6″) away and check your accuracy by placing a ruler against the lines. Make sure that the needle enters the fabric exactly on the first dot and that the last stitch is completed on the second dot.

☐ Draw lines at right angles to each other and stitch along these, lifting the presser foot and turning the fabric to stitch along the second line.

☐ Draw curved lines (you can use the edge of a saucer as a guide) and stitch along these, lifting the presser foot and turning the fabric as necessary. You may find it easier to be accurate if you use a small stitch. When you are proficient at this, draw complete circles and leaf shapes and stitch the outlines and evenly spaced straight lines across the shapes.
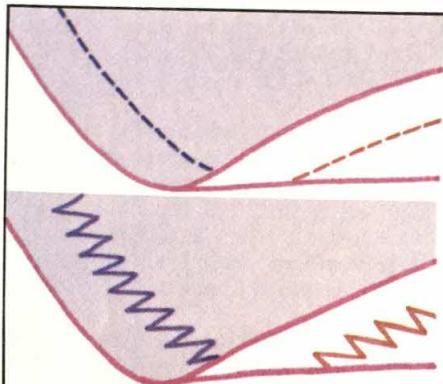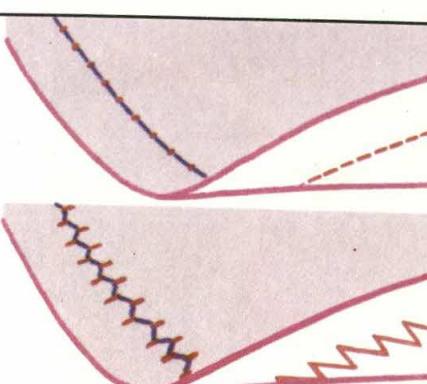
1. *Equal tensions.*   2. *Tight top tension.*   3. *Tight bobbin tension.*
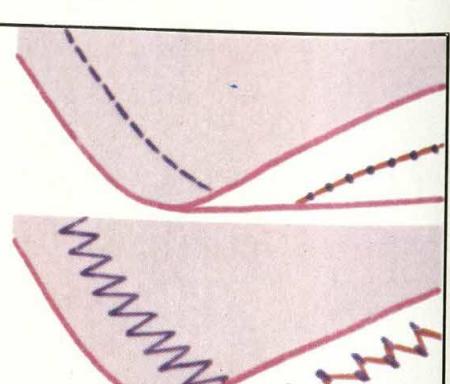
Coral Mula

Colourful design worked in applied yarns by Elna Sewing Machines Ltd.

Cable stitch

This is a method of using thick threads to introduce heavy lines and textures to a machine-embroidered straight-stitch design. The stitch has a beaded appearance and is worked with the presser foot on the machine. It is one of the best decorative methods to use if you have a hand-operated machine. It also looks attractive when worked with a zigzag stitch.

Because many machines do not stitch easily with a heavy thread on top, heavy threads, such as pearl cotton, are usually wound on to the bobbin. Ordinary sewing cotton or 30 machine cotton in a matching colour is used on top and the embroidery is worked with the wrong side of the fabric facing up.

Winding the bobbins. Most thick threads such as pearl cotton can be wound on to a bobbin with the mechanical winder on a machine but other threads, such as lurex, may snap if they are passed through the thread guides. To prevent this, wind a short length of the thread on to the bobbin by hand, place the bobbin in the winder and the reel of thread on the thread holder. Start winding, holding the thread from

Zigzag cable stitch, worked with soft thread in the bobbin, was used for this embroidery design by Elna.

Sandra Lousada

4. *Winding a bobbin with lurex thread.*

the reel lightly with your fingers to create slight tension so it is wound evenly (fig.4). Do not be tempted to wind the thread beyond the edge of the bobbin. (If you are going to do a lot of embroidery it is worth winding two or three bobbins so that you can change the bobbin quickly without first having to re-wind thread on to it).

Adjusting the tension. Place the bobbin into the holder and adjust the tension until the pull of the thread feels the same as for normal sewing. Thread the machine with sewing cotton on top and adjust the tension slightly tighter than for normal sewing.

Working the stitch. Insert the practice fabric into the machine with the wrong side facing up and try the stitch. If necessary tighten the top tension so that the stitches on the right side of the fabric have a slightly beaded appearance (fig.5a).

An interesting variation of this technique can be worked on a loosely woven fabric with the right side facing
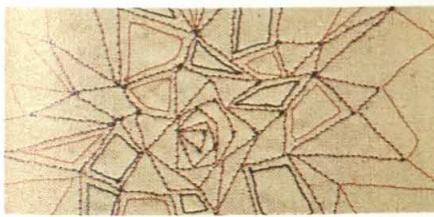
5a. *Cable stitch (in speckled section).*

up. Thread the bobbin with the heavier thread as for cable stitch and set the tension of the thinner thread quite tight. This will pull the thicker thread up to the right side of the fabric, creating moss-like texture (fig.5b).

5b. *Moss stitch (shown in thicker yarn).*

Applied yarns

Very thick yarns which could not be used on the bobbin can often be applied on fabric by straight stitching down the length. Practise doing this for straight lines first and then try curves.

☐ Thread the machine with ordinary sewing cotton to match the yarn on the top and bottom. Insert the fabric and place the yarn along the line of the design. Pass the end under the presser foot (or cording foot if your machine has one) so that it lies between the prongs.

☐ Stitch slowly, guiding the yarn

6. *Guiding the thick yarn between the prongs of the presser foot.*

between the prongs of the presser foot (fig.6).

Filling shapes. If you are filling a shape with applied yarn, you will find the neatest effect is made by working from the outside of the shape towards the centre (fig.7). Then pull the end of the yarn through to the back of the fabric with a darning needle and trim off the excess.

7. *Filling the shape by working from the outside towards the centre.*

3-D abstract wood sculpture

You should now be familiar with three-dimensional sculpture and be able to visualize how an object will look from above, below, sideways and end on. These considerations are important not only in creating 'realistic' sculptures but also in developing a sense of form

An abstract sculpture showing effective use of the lines in the laminated wood. Designed by John Matthews.

Geoffrey Frosh
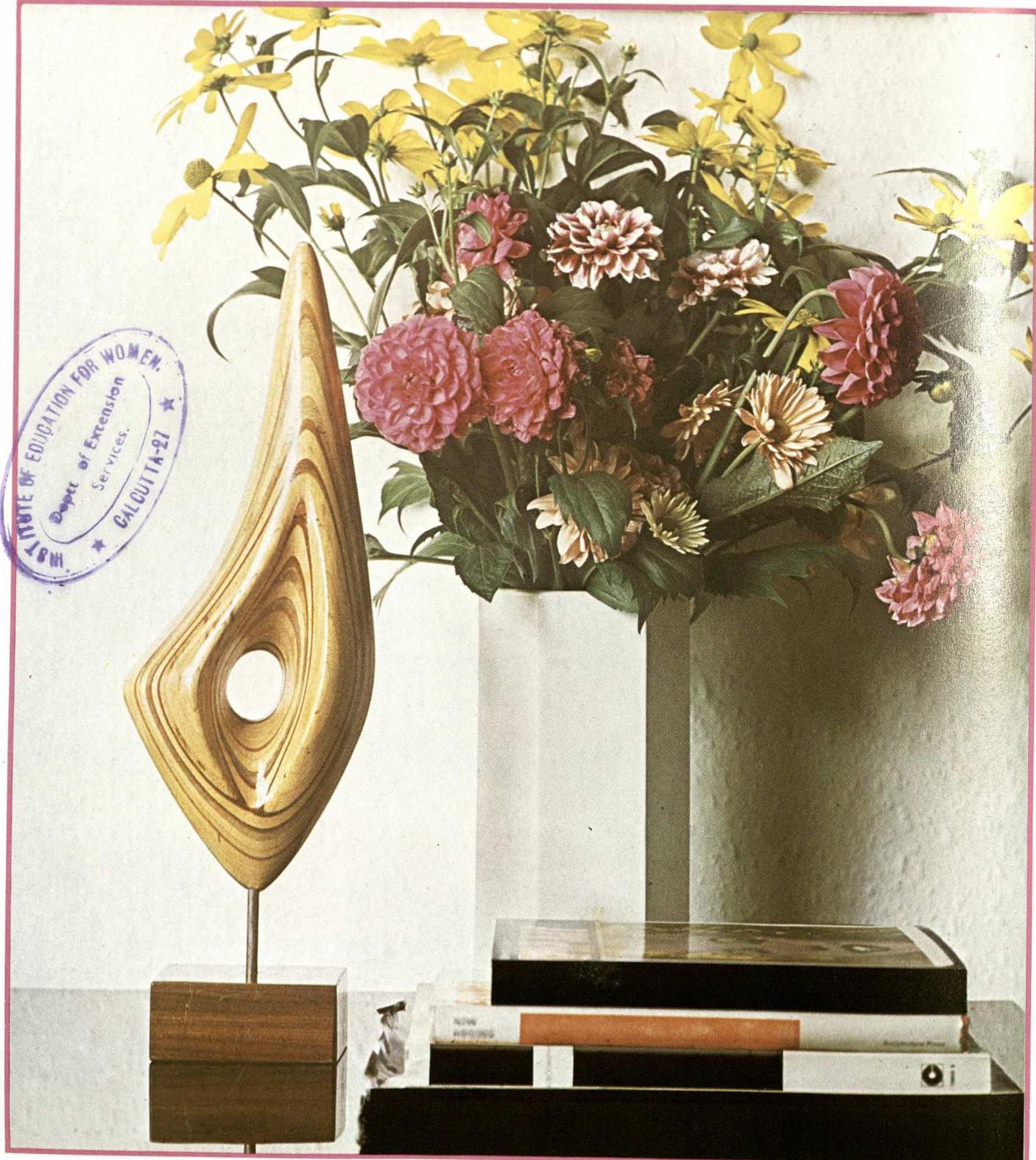
when you turn to more abstract sculptures.

One of the pleasures of doing abstract sculpture is conceiving the variety of forms that can be produced from a block of a given shape.

Abstract sculpture

Abstract sculptures combine the ability to visualize or feel the potential form of the wood, with the skill to shape or realize it in the wood.

The sculpture shown here is shaped from a laminated block of wood but any piece of natural timber can be used. With hardwood, because of its close grain, a much finer finish is possible.

The completed sculpture is 24.5cm (9½″) high and 10cm (4″) at its widest point. It is mounted on a steel rod (a wooden dowel may be used) and therefore the bottom of the sculpture has been left fairly thick.

You will need:

A laminated or solid block of wood, about 125mm x 100mm (5″x 4″), 26cm (10¼″) long.

A wooden base on which to mount the sculpture, 60mm x 32mm (2⅜″x1¼″) and 8cm (3¼″) long.

A piece of 6mm (¼″) dowel, tubing or steel rod, 11cm (4½″) long to fit the sculpture to the base.

Large sheet of drawing paper and pencil or felt-tipped pen.

Glasspaper—medium and fine grades.

Wax or polyurethane varnish.

Tools and equipment as in Modelling chapter 3, page 1228.

Drill with 6mm (¼″) bit and a larger bit suitable for drilling a 19mm (¾″) hole.

Hammer, carver's mallet, firmer gouge.

☐ Scribe, free hand, some interesting figure-of-eight loops on a large sheet of drawing paper.

☐ Select the shape you like best, and cut it out.
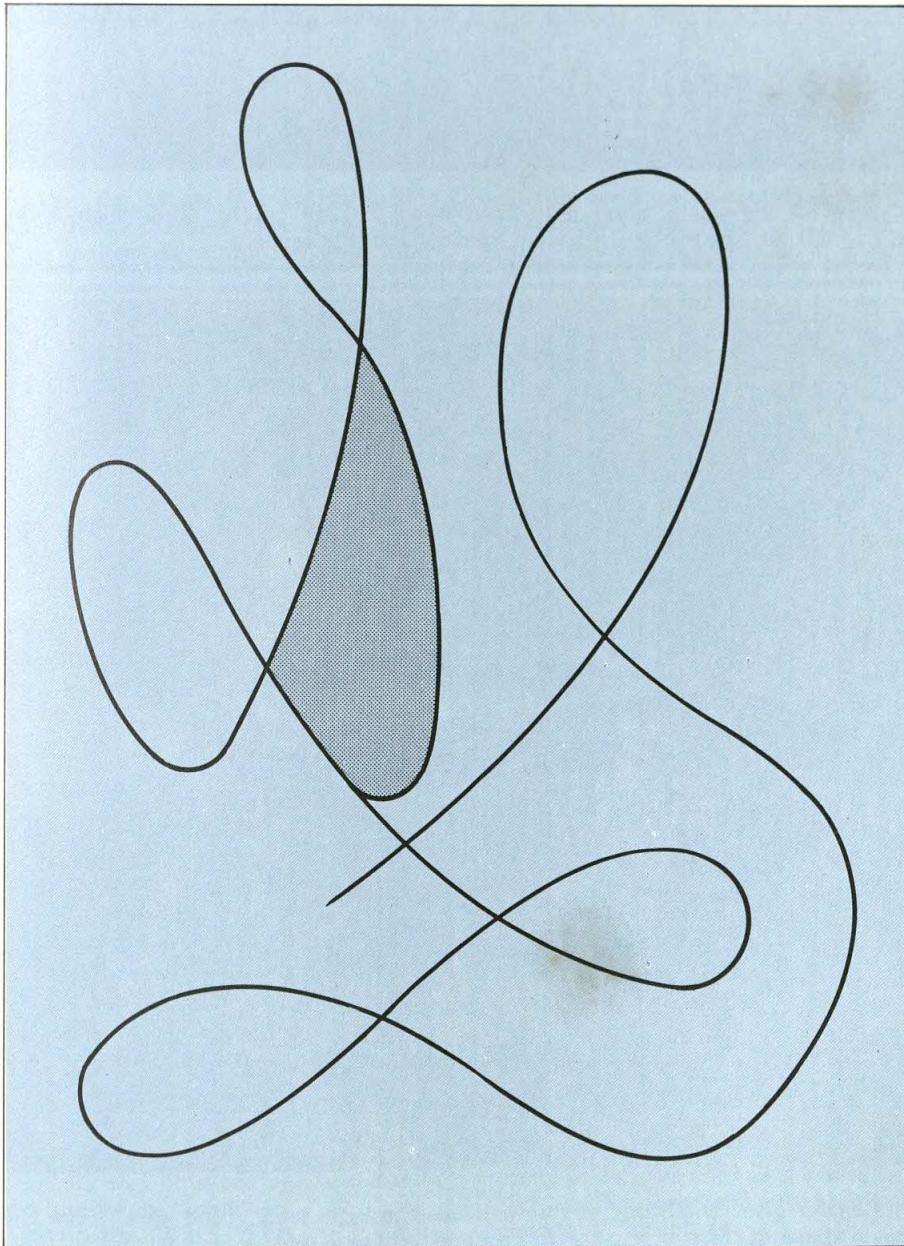
Tool box
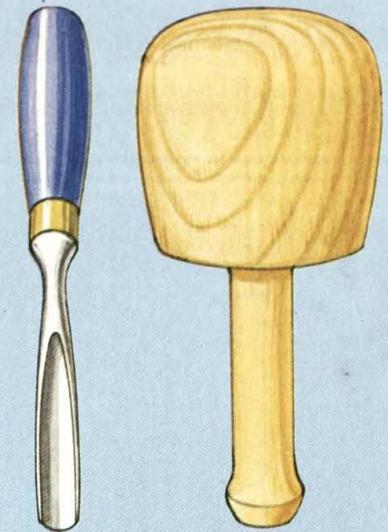
Carving gouges are available in a wide range of blade shapes and sizes, each suited to a particular wood carving task. For the abstract sculpture, however, all that is required in the way of carving gouges is a firmer gouge with a 22mm (⅞″) wide blade.

The blade of the firmer gouge has the same curvature irrespective of its width. Blade widths can vary between 2mm (1/16″) and 38mm (1½″) wide. Firmer gouges are used mainly for hollowing out work.

In order to make deeper cuts in the wood you will need a carver's mallet. Traditionally this is a short-handled, round-headed wooden hammer, but an ordinary square-headed carpenter's mallet can be used.
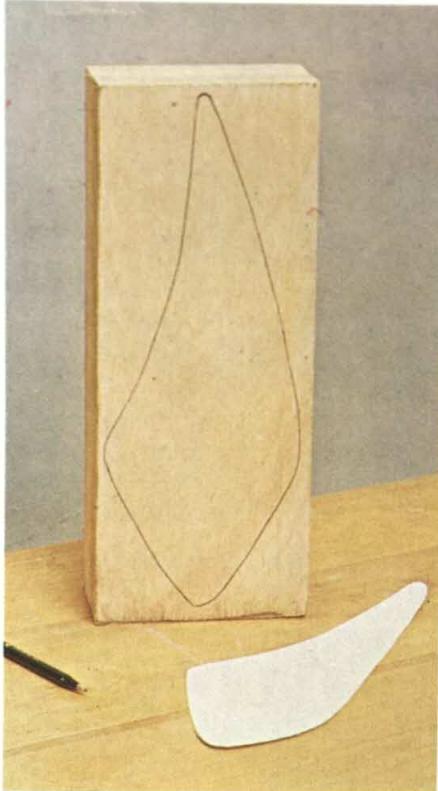
☐ Enlarge if necessary and trace this template on to a block of timber.

☐ Saw off the waste wood and clean down to the traced lines with a flat Surform tool. The sculpture is visualized around this shape.

Dick Miller

☐ Draw in the side features. Make bottom thicker for mounting rod.

☐ Remove the remaining waste with the Surform tools. You now have the basic shape of the sculpture. Final shaping is done later.
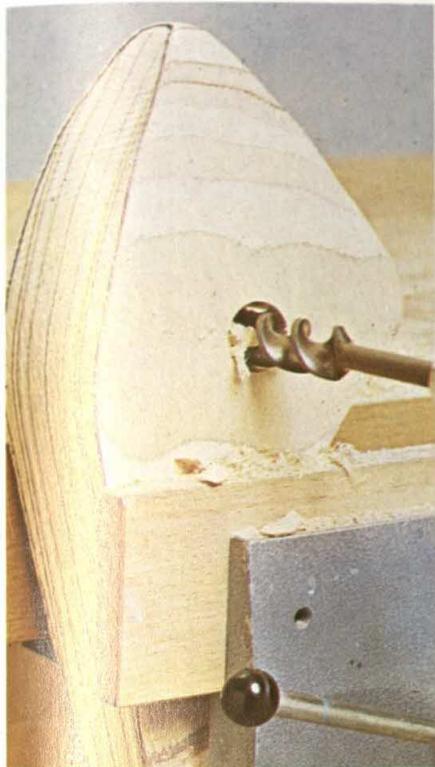
□ Use the 19mm (¾″) bit to drill a hole in the thickest part of the wood. This makes the sculpture more interesting by breaking the solid surface.
□ With the firmer gouge and carver's mallet, develop the hole as a design feature. Gouge small bits at a time.
□ With the Surform tools develop the shape of the sculpture.
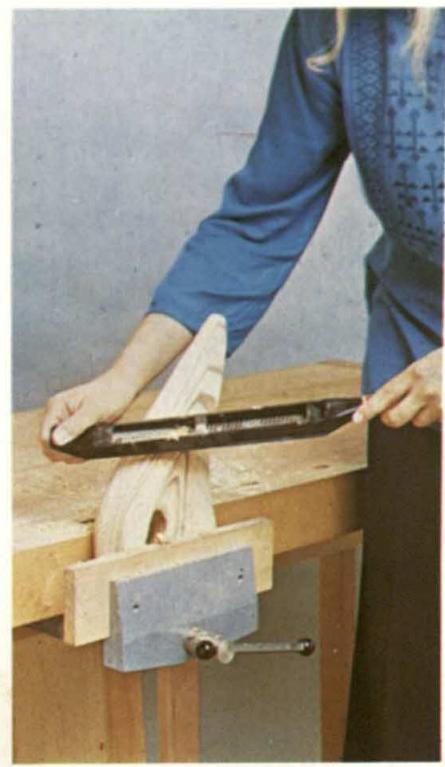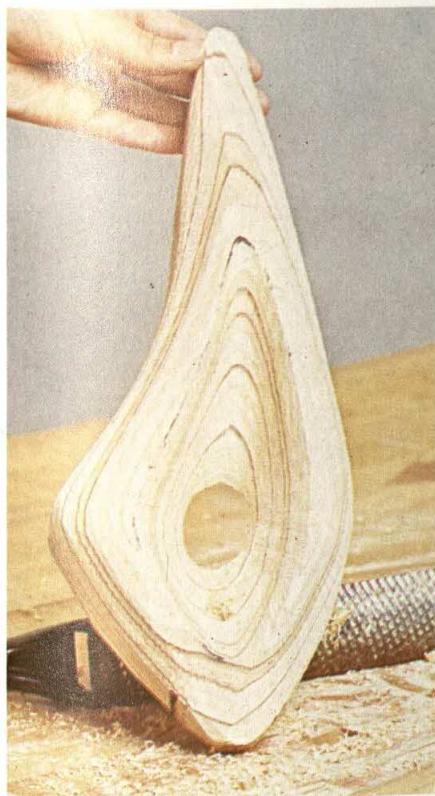
□ The final shaping is a matter of personal taste but try and accentuate the lines of the wood.
□ With the 6mm (¼″) bit, drill a hole in the bottom of the sculpture 2.5cm (1″) deep. Drill a similar hole in the piece of wood to be used as the base.
□ Fasten the dowel rod into the base to mount the sculpture.
□ Smooth the sculpture with the medium grade glasspaper and finish with the fine grade.
□ Apply a polyurethane varnish or wax finish and mount the sculpture on to the dowel or steel rod.
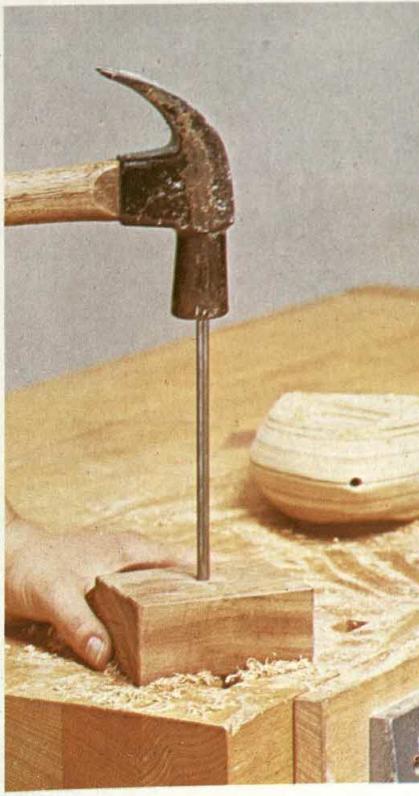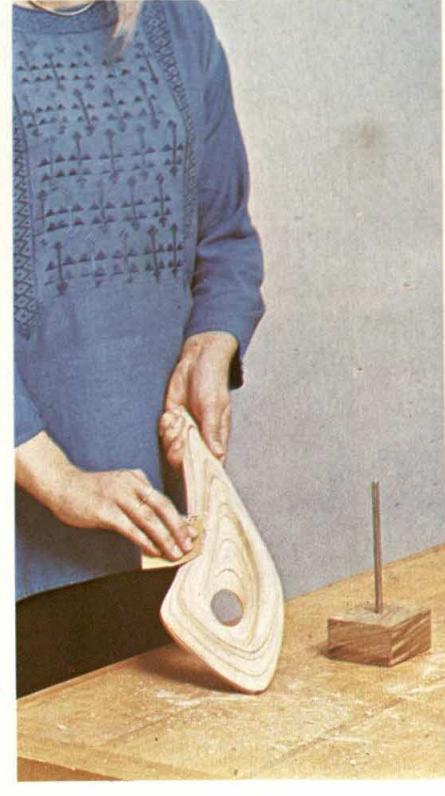
Polishing slabs by hand

Contrasted with the tumbling process of polishing stones, described in Lapidary chapter 2, page 276, is the process of polishing them by hand. Only flat stones are suitable for hand polishing, and the method, known as lapping, involves both grinding the flat face of the stone against more resistant materials on a surface called a lap, and then giving it a final polish by means of a leather or felt buff and powdered materials, in order to produce a shine. This is a more time-consuming process than tumbling, but the advantage of finishing a stone in this way is that the end result can be controlled more easily; you decide what part of the pattern will show in the finished stone, which can also be much larger than the pieces suitable for tumbling. Most slabs are improved by lapping; even slabs bought from a lapidary shop often require further polishing to make them really glossy.

Polishing flat stones and slabs is

accomplished commercially on machines incorporating rotating and vibrating discs, known as laps or lapping plates, which are made of cast iron. You can buy a lapping unit from a lapidary shop but it will be rather expensive unless you intend to make this a full-time hobby. Start by hand polishing, which will produce excellent results, with a little hard work and patience, before deciding whether to invest in specialist equipment.

Most lapidaries who work at home prefer to buy their slabs from dealers. It is possible to buy flat stones and slabs of many types of rock and of interesting shapes, colours and patterns.

The advantages of these over smaller stones is that it is possible to see the whole pattern in the stone rather than just a part of it. If the slab is quite thin the light will show through it and enhance the pattern even more.

Buying ready-cut slabs saves time and enables you to select a design which appeals to you rather than gamble on finding a good pattern hidden inside a chunk of uncut rock. However, if you have bought or collected uncut pieces of rock (roughs), you can have them custom-slabbed commercially: softer materials, such as amber, coral, malachite and turquoise can sometimes be cut by marble masons, but harder

rocks such as agates will need to be slabbed by lapidaries. It is a good idea to join a local lapidary club since you may be able to use their equipment; otherwise your dealer will probably be willing to saw up your roughs for a small charge. (Using a slabbing saw yourself, to slice roughs into slabs, is described in a later chapter.)

A simple, well-lit display of polished slabs and uncut rocks shows off their intrinsic beauty. From left to right, back row: petrified wood, moss agate. Front row: hematite, azurite (the blue encrustation), banded agate, rhodonite, red agate.

The guidelines given for polishing stones according to their hardness do not necessarily have to be followed: the list below gives some tried and tested combinations for giving the final polish to a stone:

Stone	Polish	Lap
Amazonite	Tin oxide	Felt
Aventurine	Cerium oxide	Felt
Bloodstone	Cerium oxide	Leather
Coral	Tin oxide	Leather
Garnet	Cerium oxide	Felt
Hematite	Cerium oxide	Leather
Iolite	Tin oxide	Felt
Jasper	Cerium oxide	Felt
Jet	Cerium oxide	Felt
Labradorite	Tin or aluminium oxide	Leather
Malachite	Tin oxide	Cork
Obsidian	Cerium oxide	Felt
Rhodonite	Tin oxide	Cork
Sunstone	Tin oxide	Leather

For a fuller list of stones and their relative hardness on the Mohs' scale, see Lapidary chapter 2, page 276.

Grinding

The first objective, when aiming for high polish on a slab, is to remove any cutting marks or blemishes by grinding. The technique can also be applied to marble, slate, or even a flattish pebble.

If the slab is thick and too heavy to hold by hand, it is best to rest it on newspaper on a flat surface and 'sand' the top surface with wet and dry silicon carbide paper stretched over a wooden block. Use a coarse grade at first, for example 80 grit, progressing to 320 and finally 400 grit. Use the paper with water and a small amount of detergent.

Power sanders may be used, but in this case do not use water if the equipment is connected to mains electricity. Be careful not to breathe the dust produced and take care not to make more scratches than you remove, by washing the stone between every stage, to ensure that no piece of grit remains on its surface.

If the slab is small enough to be hand held, then polish it by moving it over loose grit. Use a sheet of plate glass as a lap, resting it on several sheets of newspaper. Use loose silicon carbide grits and water, and progress from coarse to fine grit as already

The first stage in polishing a small slab is to grind it against loose grits and water on a glass lapping plate.

described.

□ Use a plastic squeeze bottle to hold the water, and squirt it over the glass. Sprinkle a little of the coarse grit (80 or 100) on it, then rub the slab all over the glass, in a figure-of-eight pattern, continually for a few minutes.

□ Move the slab around in your hand from time to time, to avoid wearing it down unevenly. Add more grit when necessary (that is when you no longer hear the noise of the friction), and occasionally wash and dry the slab and inspect it under a good light for any scratches.

□ When the surface of the slab is completely smooth and free from blemishes, wash and dry it again, along with the lap (glass) and your hands.

□ Destroy the top sheet of newspaper to ensure that no grit remains and repeat the process using 320 grit and finally 400 or 600 loose grit, until the dried slab shows almost a semi-polish. Remember to wash everything thoroughly between stages, as one particle of grit in the final polishing area can ruin the smooth surface of your slab.

You can straighten the edges of a slab if necessary, by the same process.

Finishing

The slab should now have a smooth satin surface. The easiest method of finishing the slab is to apply two coats of hard varnish such as polyurethane, but a serious lapidary would not approve of such a method.

For relatively soft stones (up to 5 on the Mohs' scale), a polish may be obtained by rubbing the surface with a
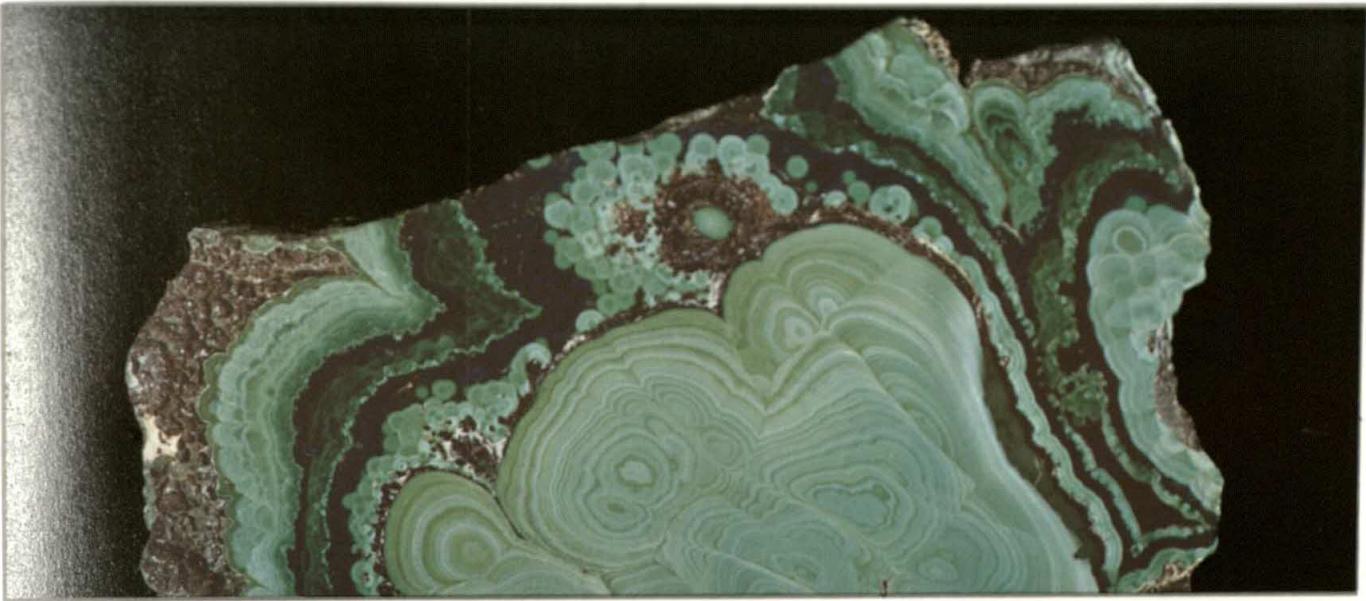
To give a final polish to a slab, rub it with a damp pad and an oxide powder.

damp leather pad and putty powder (tin oxide). The leather polishes best when it is almost dry, but still takes a long time. For harder materials such as jade, opal, sodalite and amethyst; and others up to 7 on the Mohs' scale, leather and ruby powder are generally considered to be the best polishing agents. (Ruby powder, or aluminium oxide, is crushed corundum, either natural or synthetic.) For quartz and agate, and other materials of 7 or over on the Mohs' scale, felt and cerium oxide produce a beautiful gloss.

However, these are by no means the only combinations which can be used and it is worth experimenting with different polishing powders and laps (felt, leather, and even cork) for yourself.

Some uses for slabs

Slabs with interesting shapes, colours or patterns can be beautiful objects just as they are. They may be displayed on stands manufactured specially for the purpose, available from rock shops. They may also be used as wall plaques by using a ring clip of the type used to display plates.

Your polished slab would also make a fine clock face. Battery-driven clock movements are available from many electrical suppliers and are not very expensive. Numbers or markers may be attached to the face with an adhesive such as Araldite or Permabond. The problem with such a project is drilling the holes for the spindle to which the hands are fixed. Drilling is dealt with in a later chapter, but at this stage the drilling is best carried out by a lapidary or glassworker. Softer materials with a hardness of 6 or below might be drilled with masonry drills but, if you are not an expert, hours of work could

be ruined if the drill were allowed to wander over the polished surface of the slab.

One of the simplest ways of using a thick slab is as a paperweight. If the shape is interesting there is no need to trim or smooth the edges. Such a block may also be used as a plinth for a model, a bronze figure, a seashell or a pen holder. Stick a piece of felt on the base with an epoxy adhesive such as Araldite or Bostik 7.

This beautiful slab is malachite with bands of azurite (blue copper carbonate crystals) encrusted in it.

However, there is no need to incorporate your slab into anything functional. A simple display of polished stones makes a beautiful addition to any décor. More ways of using slabs which are both decorative and functional are discussed in a later informative Lapidary article.
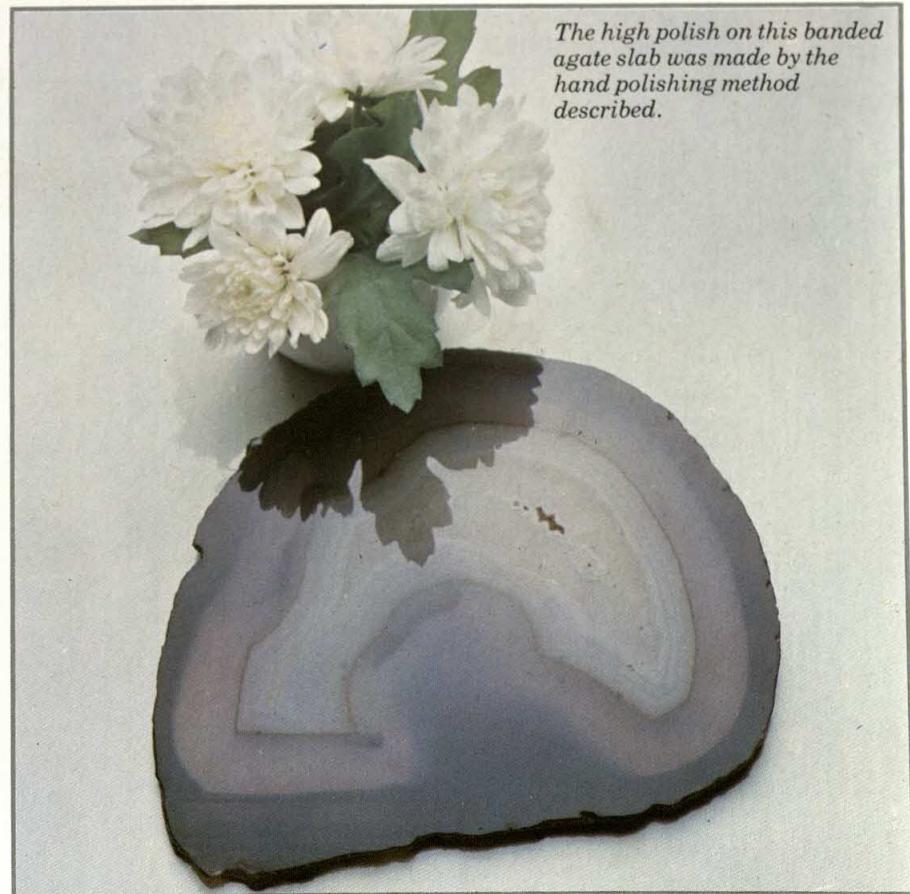
The high polish on this banded agate slab was made by the hand polishing method described.

Imitation bamboo finishes

Of all simulated finishes bamboo perhaps best represents the English genius for whimsy and fantasy. Imitation or mock bamboo developed in the 18th century as the result of a passion for oriental wares which the expanding

This antique simulated bamboo chair has been given the traditional finish. Parts without ring turnings, eg arms, are decorated with lines and 'eyes'.

Melvin Grey

trade between East and West created. The demand could not be met by imports alone so native craftsmen turned to the production of pseudo-oriental artifacts. The fashion reached its peak in England with the decoration of entire rooms, even buildings, in the Eastern inspired designs that became known as *chinoiserie*.

The best known expression of this style is the Chinese-style furniture produced by Thomas Chippendale. Here the fantasies of the East were brilliantly adapted to the needs and formalities of the 18th-century drawing-room.

But although Chippendale is the most celebrated example, the Chinese taste was sufficiently popular to be adapted by lesser craftsmen to simple pieces of furniture constructed in cheap woods —these were made and painted to look like oriental materials, notably bamboo.

Such pieces were usually ordinary, functional articles, such as chairs, tables and wash-stands. Occasionally they can still be found in junk shops— their imitation bamboo decoration hidden beneath layers of much more recent paint. They can be recognized by the ring turnings on legs and chair backs, spaced in a formal and symmetrical manner and designed to mimic

Close up of simulated bamboo chair shows the lining on the rings, the leaf joints painted in and the 'eyes' with their pattern of black dots.

true bamboo.

Natural bamboo. Decorated bamboo is not limited to simulated bamboo, however. It is also feasible to paint real bamboo in a formalized or fanciful manner. In fact, natural bamboo furniture is often artificially coloured and burnt to give it interest. Furthermore, real bamboo furniture is usually easier to find in junk shops than pieces of simulated bamboo.

Unpainted furniture. Well worth looking out for also are modern, unpainted pieces with an oriental flavour suitable for turning into decorated 'bamboo' furniture.

Preparing the surface

Simulated pieces. The preparation of an old simulated piece depends on its condition but it is important to start always with a sound and smooth base, so the removal of old, chipped paint with paint stripper is necessary. This will also restore the clarity of the original turning which can easily be lost beneath layers of paint.

When the paint is removed, rub down the surface with fine steel wool or fine grade glasspaper and then prime in the ordinary way and allow to dry.

New unpainted wood should be rubbed down with fine steel wool and then primed.

Real bamboo. Before beginning to paint you must first rub down the piece with coarse steel wool or medium grade glasspaper to remove all the old varnish and dirt. This will also

roughen the surface so that it takes the paint well.

Traditional simulated finish

The type of finish you use is really a matter of your own taste. However, antique pieces of simulated bamboo should really be given the traditional mock finish described here, while real bamboo or a modern piece can be decorated with any one of the finishes described in this chapter.

You will need:

Oil-based household undercoat in pale yellow.

Artist's or student's oil paints in Venetian red, yellow ochre and burnt umber.

Black enamel, such as Humbrol.

Graining medium: ($\frac{1}{3}$ linseed oil, $\frac{1}{3}$ white spirit and just less than $\frac{1}{3}$ terebine liquid driers gold size or the drying oil sold by art suppliers (any of these will speed the drying process).

Eggshell or gloss varnish.

Wax polish (optional).

Fine steel wool.

Good quality decorating brushes including one 2.5cm (1") brush.

Range of soft artist's brushes.

Note: Terebine driers contain some lead (as to a lesser extent does most gold size and drying oil) so don't use on children's toys etc.

☐ Give the piece a thin undercoat in pale yellow. Then apply a further coat of undercoat tinted with yellow ochre and a touch of Venetian red oil paint.

☐ Brush graining medium tinted with a little burnt umber oil paint along the length of the bamboo, using 2.5cm (1") decorating brush. The effect should be stripy to simulate the cane. Allow to dry.

☐ Add some more burnt umber to the graining medium and paint in spots or 'eyes' in this stronger colour (the eyes when painted should be transparent). Allow to dry.

☐ Line the rings with black enamel and build up a regular pattern of black spots—a large spot in each eye, two smaller dots under it and one above. Paint in leaf joints.

☐ When the piece is thoroughly dry, apply a coat of eggshell or gloss varnish tinted with raw umber oil paint all over the piece, brushing it out well. This will give an antique tone.

☐ When completely dry, rub very lightly with fine steel wool the areas which are subject to handling and rubbing in normal use, but leave the tint in the cracks and joints.

Warning: this rubbing down should be done very subtly and carefully or the piece will be spoilt.

☐ When you are satisfied with the antique appearance of the paint surface give it a coat of clear gloss or eggshell varnish or wax polish.

Ray Duns

White bamboo

You will need:

White, green, orange and black enamel paint, such as Humbrol.
Pale yellow acrylic paint (such as Rowney's Cryla) (optional).
Brushes as for simulated finish.
Fine steel wool.
Eggshell or gloss varnish.
Wax polish (optional).
Old, worn paintbrush and piece of battening for spattering (optional).

Above: white bamboo has green painted rings, lined with black, black leaf joints and orange 'eyes' with black dots.

☐ Paint the piece with two coats of white enamel paint, using a decorating brush. When the second coat is dry, rub it down lightly with fine steel wool to produce a smooth finish.
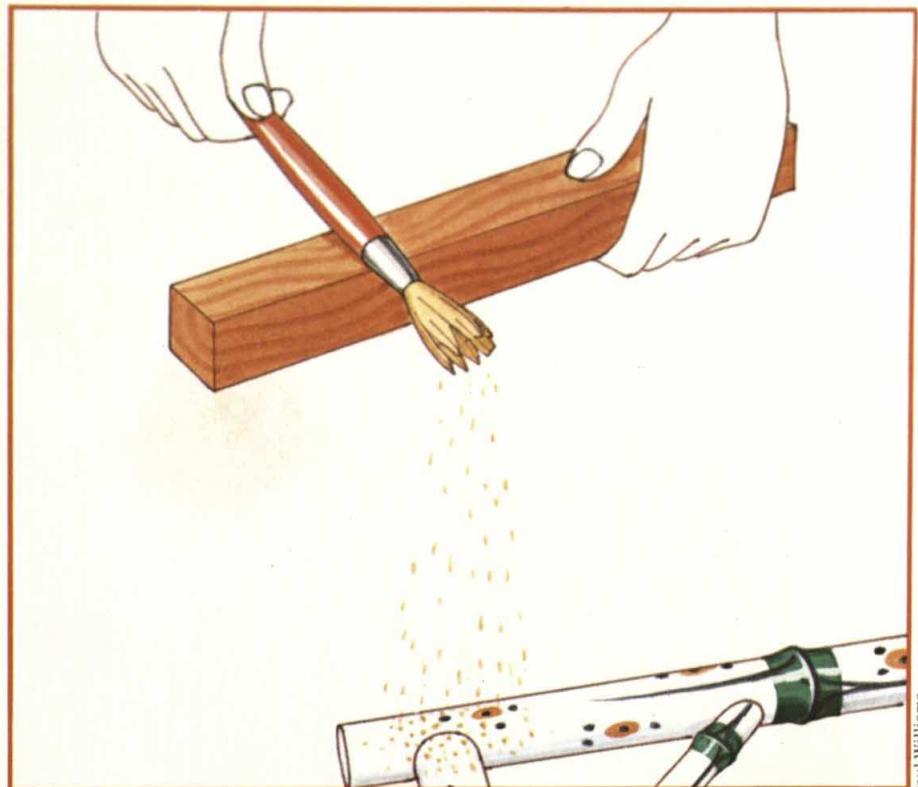
☐ Then, with an artist's brush, paint over rings with green bands. These can be more exaggerated than with the more restrained and formalized simulated bamboo and can overlap the rings, but this is a matter of taste.

☐ When the green paint is dry, paint a fine black line over the green, round the actual line of the ring. Apply orange spots with a black centre and smaller black dots above and below. Add black lines to represent the leaf joints. These will have to be formal and not related to the existing ones, as these often run almost the entire

1. *Scrape surplus paint off brush before spattering. Hold brush and battening as shown about 60cm (2') above work and rap brush on battening.*

length of the bamboo, between rings.

☐ When the whole piece is dry, spatter the surface with a thin pattern of spots in pale yellow paint (fig.1) if you want an antique look. Practise first to avoid making spots too large and cover anything you do not want spattered.

☐ To finish, give the same treatment as for simulated bamboo—tinted varnish which is rubbed off in areas of wear and final coat of clear varnish.

Red bamboo

You will need:

Orange, red, white and black enamel paint, such as Humbrol.
Brushes as previously listed, plus a stiff round hog hair fitch.
Fine steel wool.
Ochre and black acrylic paint (such as Rowney's Cryla) (optional).
Eggshell or gloss varnish.
Wax polish (optional).

☐ Apply a coat of orange enamel. Allow to dry.

☐ Drag a coat of red enamel along the length of the bamboo allowing a little orange to show through in fine streaks:

Three pieces of real bamboo which have been painted—two in a fanciful way and the third in a version of the simulated finish (see page 2007).

Rings, leaf joints and 'eyes' on this red bamboo have been applied in a rather different manner from those used to produce the white bamboo finish.

the amount can vary from fine streaks to almost invisible 'highlights'. Always use a stiff round hog hair brush (fitch), dip it in the paint, wipe out surplus paint on a newspaper and apply fairly dry.

☐ Rub down gently with fine steel wool when dry.

☐ Paint on spots with white enamel, paint black spots in the centre.

☐ Paint in rings and leaf joints in black.

☐ When dry, spatter sparingly with a little ochre and a little black acrylic paint if you want an antique look.

☐ Finish as for white bamboo.

Working with soft leather

In this and some later chapters techniques for working with soft leather are discussed, and instructions are given to make articles illustrating the techniques. In this chapter there are instructions for making two different cheque-book covers—one plain and one appliquéd with two strips of contrasting leather.

Soft Leather

Soft leather comes from smaller animals such as goats, hair sheep (which come from sub-tropical areas and look like goats), wool sheep (which have a fleecy coat), pigs and calves. Soft leather can also be made from cow-hide by scraping off the flesh side to make a thin skin.

Both suede and grain (or nappa) come under the heading of soft leather and are worked in the same way. Several different types of soft leather are available.

Calf comes from a young cow and is a very soft, smooth skin used for garments, bags and shoes.

Cape was originally a soft leather derived from South African hair sheep. Today it is any similar leather made from hair sheep skin.

Persian is leather from small goats or hair sheep from sub-tropical areas such as Iran and Turkey. It is of the highest quality, and only available from a few suppliers.

Kid is another very soft skin from kids or goats. It is sometimes called glacé kid because of its extremely smooth, soft surface.

Basil is a fairly coarse wool sheep skin used for such things as gardening gloves.

Skiver is a very thin leather made by splitting goat or sheep skin. It is used for backing soft leather to strengthen it.

Pigskin can be very light and soft and is used for clothes as well as gloves, wallets and bags. It has a distinctive marking caused by the way the hairs grow on a pig—in groups of three.

Choosing the skin. When choosing a skin, look out for holes and blemishes and, if possible, buy a skin large enough to take all your pattern pieces. Make sure the leather you buy is suitable for what you want to make. For a handbag or garment, ask for what is called 'clothing leather'. If in doubt, ask your supplier to help you choose the right sort of leather.

Left: some soft skins (starting top left in clockwise direction) rust pigskin (grain side up, suede underneath), dark brown Persian (grain), beige Persian (grain), red calf (grain), tan calf (suede), tan cow-hide split (grain), navy sheep skin (grain). Centre: a special calf skin for making shoes.

All skins are not of uniform quality. For example, parts along the back of the animal are fairly rigid while other parts such as the fore and back legs and the belly are soft and stretchy. Bear these differences in mind when arranging a pattern on a skin.

Cheque-book cover

This very simple pattern introduces techniques for cutting, backing and stitching soft leather. An alternative pattern introduces some very simple appliqué work. More complicated appliqué techniques are covered in later chapters. The size of the finished cheque-book covers shown overleaf are 18cm x 9cm (7"x 3½") and will fit most cheque-books without counterfoils. To adapt the dimensions of the pattern pieces (fig.1) double the length of your cheque-book and add 7.5cm (3"), and add 1.3cm (½") to the width.

You will need:
A sharp knife such as a Stanely knife.
Leather adhesive such as Croda (Cow Gum will do).
Glue spreader.
Steel rule.
Ballpoint pen.
Sharp pencil.
Selection of cotton threads such as those made by Sylko—choose contrasting colours for decorative stitching, and a matching colour for the final stitching.
Sewing machine (optional) with a size 100 (16) needle.
Sharp needle for hand stitching called a glover.

Thimble.
Piece of lightweight clothing leather at least 42.5cm x 10cm (17"x 4") for the base piece A (fig.1) and strap piece D. Two smaller pieces of leather for appliqué shapes B and C (fig.1) both 36.5cm (14") long, one 5cm (2") wide, one 1.8cm (¾") wide.
Leather for appliqué can be obtained from bags of offcuts which can be bought from some leather suppliers and craft shops.
Piece of skiver about 25cm x 42.5cm (17"x 10").
Piece of card from which to cut pattern pieces.
One strip of Velcro 9cm x 2.5cm (3½"x 1").
Cutting out the pieces. When cutting out a pattern from soft leather, the pattern pieces should be cut out of card and arranged on the wrong side of the leather.
When arranging the pattern pieces be sure to avoid any blemishes on the front of the leather. Keep economy of material in mind—don't place a small piece in the middle of a skin. Select a suitable area along the edge of the skin.
Because all the lines on the cheque-book cover are straight, the pieces are cut out with a sharp knife run along a steel rule. For curved lines it is better to use scissors.

☐ Cut out the pattern pieces shown in fig.1 (pieces A, B, C and D) from a piece of card. If you are making the plain cheque-book holder cut pattern pieces A and D only.


BASE A

39cm (15")

9cm (3½")

APPLIQUE STRIP B

36.5cm (14")

5cm (2")

APPLIQUE STRIP C

1.8cm (¾")

HOLDING STRAP D

2.5cm (1")

9cm (3½")

1. *Cut A, B, C and D for the appliquéd cover, cut A and D for the plain one.*
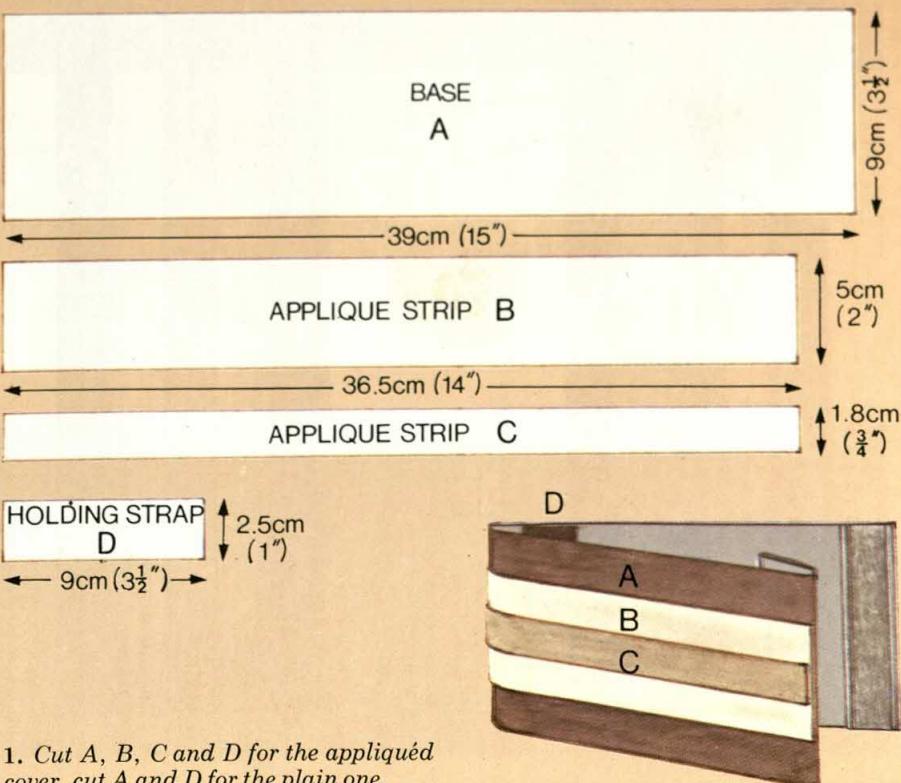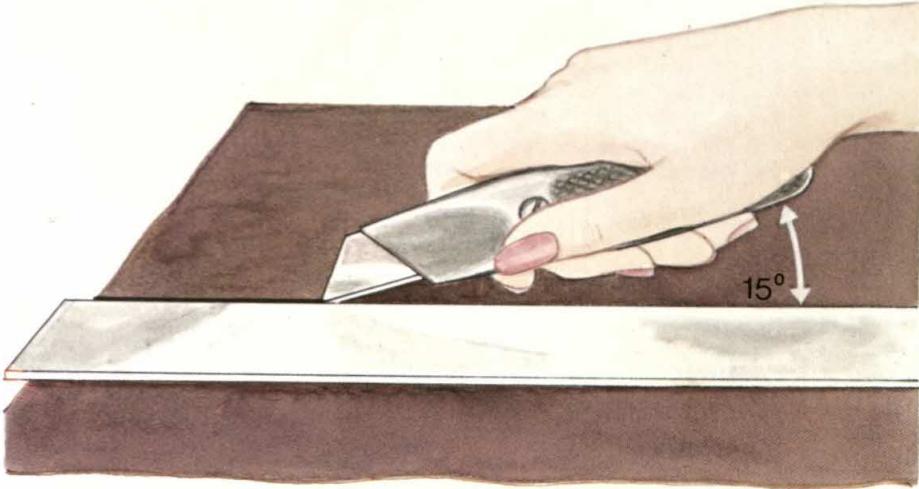
2. *Keep the knife straight against the rule, at 15° to the skin.*

Velcro strip on wrong side →

ORDER OF
DECORATIVE
STITCHING

1st line ─ · ─ · ─ ·
2nd line ················
3rd line ─ ─ ─ ─
4th line ▬ ▬ ▬ ▬

Velcro strip on right side ─→
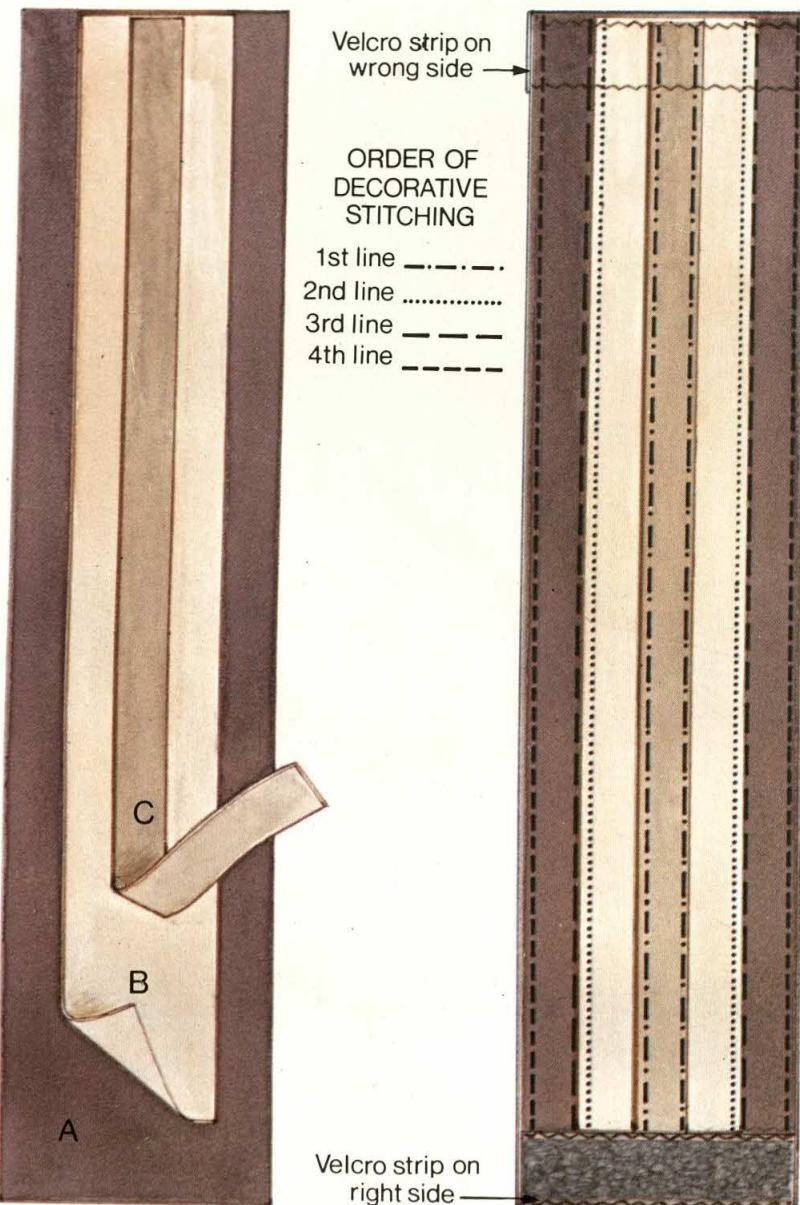
3. *Position of strips B and C.*　**4.** *Lines and order of stitching.*

☐ Arrange the pieces on the wrong side of the leather and draw round with a ballpoint pen.

☐ Use a sharp knife to run along the steel rule and cut out the pieces. Hold knife blade flat against the edge of the ruler to get a vertical cut, and at an angle of about 15° to the skin (fig.2).

Backing. Soft leather is often backed with skiver, a thin leather which is glued on to the back of the skin to strengthen it.

After the leather has been stuck on to the skiver, the skiver is cut to the same shape as the leather.

☐ Place pattern piece A on flesh side of skiver and draw round to mark the area for the glue.

☐ Apply a thin layer of glue to the back of the leather piece A and to the marked area on the back of the skiver and stick the two surfaces together.

☐ Cut the skiver to the shape of piece A, using the knife and steel rule.

Appliqué. If you are making the cheque-book holder with the appliqué, this is attached now.

Appliqué shapes are first glued to the leather and then stitched down. The area to be glued on the front of the leather should be marked with a sharp pencil and not a ballpoint pen. (Ballpoint pens should only be used when marking the back of a skin.)

☐ Following fig.3, place piece B on base shape A and draw round with a sharp pencil.

☐ Apply a thin layer of glue to the back of shape B and to the marked area on shape A and stick the two surfaces together.

☐ Position and glue strip C on piece B (see fig.3) as before.

☐ Firm down all over by thumping with the heel of the hand.

☐ When the glue is dry, the cheque-book cover is ready to be stitched.

Stitching. Soft leather can be stitched by hand or by an ordinary sewing machine. When stitching leather by hand it is necessary to use a special needle. Glover's needles are diamond shaped in section and very sharp. These needles are suitable for stitching several layers of soft leather or leather that has been backed with skiver. When hand stitching soft leather use a backstitch in the same way as for fabric and wear a thimble to help you push the needle through.

☐ Stitch the appliqué to the cheque-book cover following fig.4 for the lines and order of stitching.

In the appliquéd cheque-book covers shown in the photograph, an embroidery machine was used which gives them a highly decorative finish. If you have an embroidery machine use embroidery stitches of your own choice. On a sewing machine with a straight stitch only, use several rows of

different coloured thread, and vary the length of the stitch as an alternative to the embroidery stitches.

When you have stitched along all the appliqué shapes the cover is backed with another piece of skiver to give the inside a neat appearance.

☐ Place the cover on to the skiver and back and cut out as before.

After the Velcro and holding strap have been stuck down, final stitching is done round each Velcro strip and round the outside edge of the cover.

☐ The fastening to secure the ends of the cheque-book cover is made from Velcro, but could equally well be made with a ring spring fastener (see Leather chapter 3, page 1061).

☐ Stick a piece of Velcro 2.5cm x 9cm (1″ x 3½″) on each end of the cheque-book cover, one on the right side and one on the wrong side, (fig.4).

☐ Cut out the strap which holds the cheque-book in place and back it with skiver as described.

☐ Apply a thin strip of glue to the back of the strap at each end.

☐ Affix strap to cover (fig.5). This will be stitched at each end with the final stitching.

The cheque-book cover is now ready for the final stitching. If you are making the plain cover shown in the photograph, this is the only stitching you need to do, and it may be done by hand if you do not have a machine.

If you have a machine with a zigzag stitch, set it to a size 1 x 1 stitch, about 4 zigzags per cm (10 per inch). For straight machine stitch use a size 1½-2 stitch length, about 4 stitches per cm (10 per inch).

☐ Using Sylko thread to match the colour of piece A, first stitch round the two pieces of Velcro at each end.

☐ Lastly stitch round the edge of the

5. *Glue holding strap, stitch round the two Velcro strips and outside edge, and fold along lines A and B.*

The finished cheque-book covers, plain or decorative. Designs by Lesley Slight.

cover, about 1mm (1/16″) from the edge, thereby attaching the holding strap.

☐ Slot the back cover of the cheque-book under the holding strap.

☐ Fold the cheque-book cover over along line A, see fig.5.

☐ Fold one end of the cover over firmly along line B, see fig.5 and put the Velcro strips together.

CENTRE FOLD

|← 18.25cm (7″) →|

INNER SIDE

D

B   A |← 14cm (5½″) →|
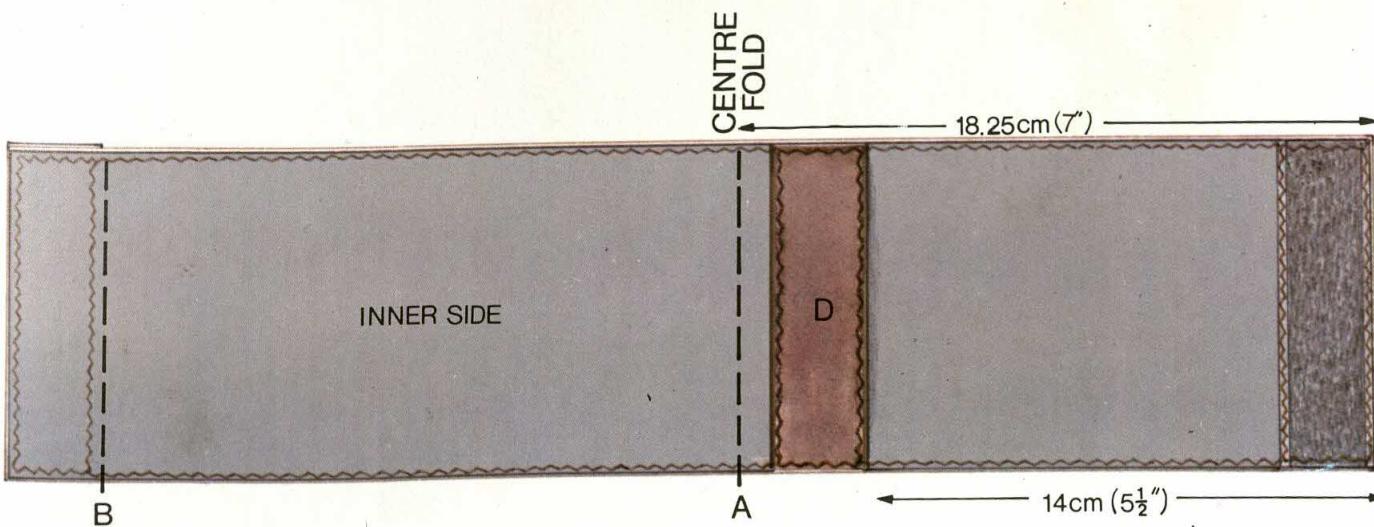
Batik combined with painting

The ancient art of batik offers a wide scope of creativity for the fabric designer and exploring its possibilities is very rewarding (Dyeing chapter 7, page 606, chapter 8, page 640 and chapter 9, page 656, give instructions in the techniques).
Combining batik with conventional

Rich designs like this one by Paula Rieu are possible with painted batik.

painting techniques gives another dimension to the art of batik. Wax is used as the resist in the traditional way but instead of being dipped the dye is painted on. This way colour is applied more precisely and a piece of work can be completed with only one waxing (although sometimes a second waxing gives greater depth and richness to a design).

The wax resist enables you to paint the dye on the fabric without a thickener since the hardened wax keeps the dye from spreading beyond the required area.

Materials and equipment

As with traditional batik, natural fibre fabrics, such as cotton and silk, are used. Silk and fine cotton are particularly suitable.

Prepare cotton fabric as for batik, making sure that it is well-ironed. Silk should simply be washed with mild soap flakes, such as Lux, then ironed. Materials and equipment are the same as for batik. Use fast-acting cold water dyes and mix according to the recipe in (Dyeing chapter 8). In addition, you will need a selection of soft brushes for painting, ranging from fine sable brushes for delicate work to decorators' brushes for large areas of colour.

The method

When your fabric is clean, dry and ironed, stretch it on a frame.

If you prefer, the fabric can be placed on several layers of newspaper and then attached to the paper with transparent sticky tape or masking tape. The paper must then be stuck to the working surface in the same way to stop it slipping about.

Application of wax. The design is applied to the fabric using a tjanting (traditional wax pen), or a brush, to draw the wax lines. Remember that an area to be painted in one colour must be completely surrounded by wax if you wish to prevent one colour running into another when the paint is applied. (Some designers occasionally let colours run together, to create special effects.)

Draw your design straight on to the fabric with the tjanting (or brush) if you feel confident, otherwise sketch it in first very lightly with a pencil.

If you are using a transparent or semi-transparent fabric, the design can be drawn up on a sheet of thin paper and placed under the fabric as a guide since the design will be visible through the fabric.

When using a tjanting it is inevitable that all but the expert will get an occasional drip of wax in the wrong place. But do not worry, this will not spoil the whole design—and it is possible that it will add richness.

A beautiful shawl on which batik and painting have been effectively combined. Designer: Harriet Cameron.

Painting. When you are satisfied with your waxed design, prepare the dyes and paint the fabric much as you would paint a water-colour.

Alternatively, if you paint on one colour at a time, ie all the yellow areas and then all the green and so on, you will not have to rinse your brush quite so frequently.

Second application of wax. When the dye has dried, a second application of wax can be drawn, if desired, on some areas of the fabric not already waxed and finer detail can then be painted on.

Drying. Allow the article to dry in a humid atmosphere for 48 hours. The dye will then be fixed.

Remove wax by ironing off between sheets of newspaper. The article should then be dry-cleaned to remove last traces of wax.

Interior design: lighting systems

Used sensibly and imaginatively, lighting can make a significant contribution to the look of a room, but all too often lighting and light fittings are the last consideration in a redecoration scheme. Unimaginative lighting can make a beautifully furnished home look dull and grey, when the choice of good lighting could add warmth and excitement. In this and later Design know-how chapters, this very important

In this room, the table lamp provides light for reading or sewing and the concealed spotlight adds interest.

aspect of interior design is discussed. The planning of artificial lighting presents a problem requiring both practical and aesthetic considerations. The average room needs light for general illumination and special lighting for particular areas and activities. The lighting equipment and fixtures must be consistent with the style of decorations and contribute to the desired character and atmosphere. They must also be adequate for the purposes of the room.

Each room is always a special problem by itself, and common sense as well as

theory must guide in the planning of its illumination. For example, a dining-room will obviously require a subdued form of light compared with, say, a work room which needs general illumination.

Methods of lighting

Types of electrical lighting are classified by the manner in which the light is directed.

Direct lighting is the type which shines directly on an object or in a limited area. This type of lighting often produces sharp shadows, strong contrasts of light and dark and is extremely effective in creating exciting and dramatic interiors. Such fittings as spotlights, desk lamps and picture lights fit into this category.

Indirect lighting is light which is directed on to a ceiling, wall, shade or other surface and is reflected from it. The light source is usually shielded from view. This type of lighting produces almost no shadow and if used alone is often flat and uninteresting. An example of this type of lighting would be a fluorescent lamp fitted behind a cornice pelmet, shining light on to the ceiling, which in turn is reflected. Another type is a light fitting completely covered with a shade so that the light is diffused and reflected by the shade.

Semi-direct lighting is a combination of the first two methods—a portion of the light is reflected and a portion shines directly on to an object or surface. An example of this type of lighting would be a table lamp with a drum shade where some of the light is directed upwards on a wall or ceiling and then reflected back, and some of the light shines down from the lamp illuminating the area below it.

Lighting a room

When deciding on the lighting in a room, consider the type of light required before you actually choose the fittings. Many rooms have only indirect lighting from one central fitting covered with a spherical shade. This often results in monotony with dull forms, little shadow, and no highlights of special objects or surfaces. To make a room look more interesting decide on certain areas to highlight—a textured wall surface, picture or *objet d'art*—and concentrate on lighting these with direct lighting. Consider what activities the room is used for—reading, sewing, or eating—and what sort of lighting is needed for these. Try to achieve a balance between the aesthetic and practical considerations. Later Design know-how chapters discuss the different types of light fitting available for use in lighting systems.

Liz Whiting